

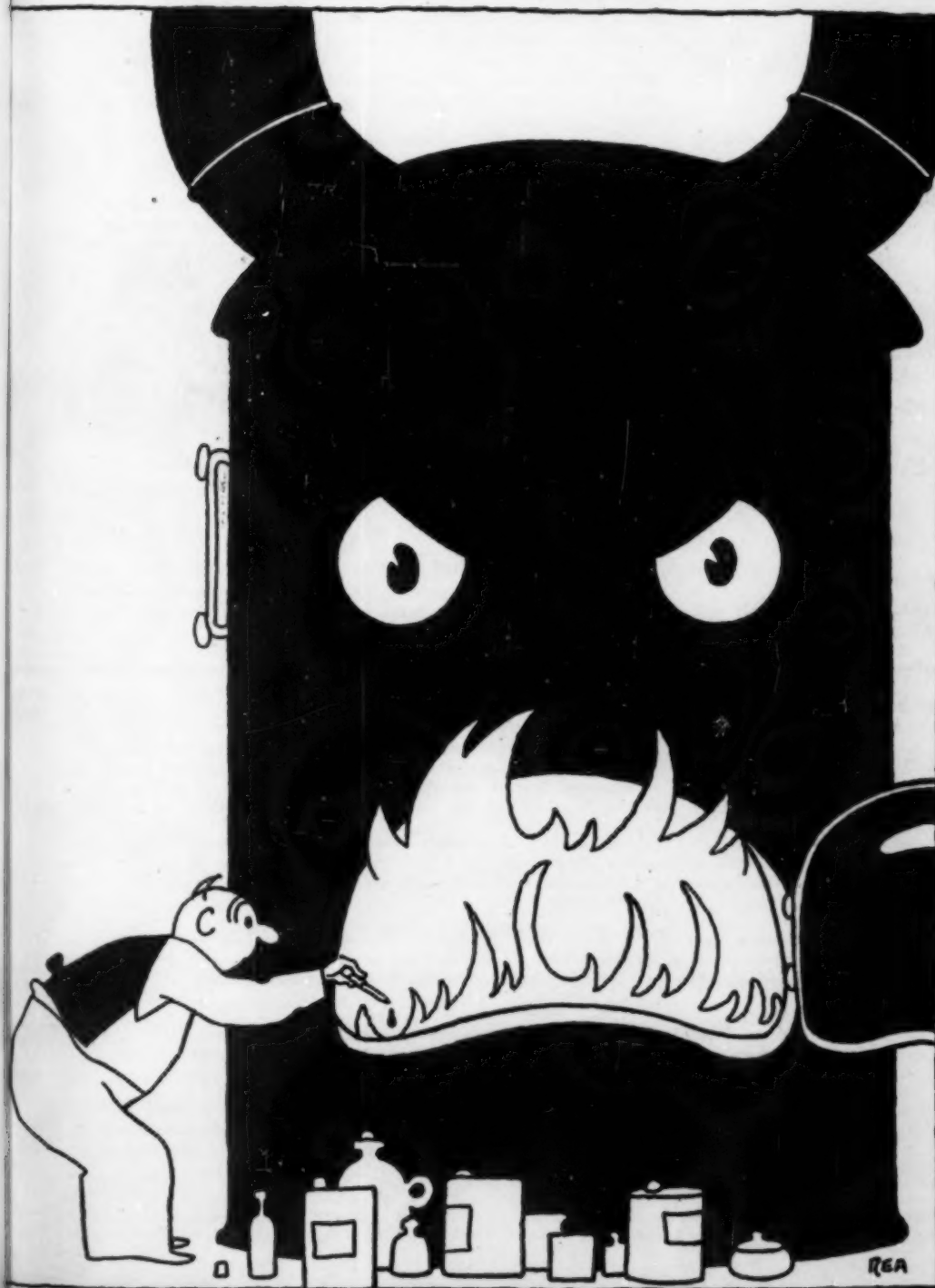
Consumer Reports

"FACTS YOU NEED
BEFORE YOU BUY"

OL. 9, NO. 2

Published Monthly by Consumers Union

FEBRUARY 1944



FUEL STRETCHERS

MEN'S SHIRTS

CANNED MEATS

RAYON STOCKINGS

FLOOR WAX

HAND CREAMS

OILCLOTH

CAMERA CARE

DEALERS IN DEATH

THE B VITAMINS

WAGNER BILL

Hear Ye! Hear Ye!

NOMINATIONS ARE IN ORDER

... to fill the vacancies on the Consumers Union Board of Directors when the terms of the following Directors expire next June: Abraham J. Isserman, Arthur Kallet, Walter Rautenstrauch, Bernard J. Reis.

HERE ARE THE RULES AS PROVIDED BY CU'S BY-LAWS:

- Any member of CU may make a nomination. Each nomination must include the full name and address of the nominee plus, preferably, any relevant facts as to the nominee's scientific, professional, consumer, co-operative, labor and other connections, and the type of work he is engaged in.
- No one having a financial interest in the production or distribution of any consumer goods is eligible to serve on the Board.
- Nominations must be signed by the member, with the member's full name and address given.
- Nominations must be mailed, no later than March 15, 1944, to the Secretary of Consumers Union, 17 Union Square West, New York City 3.
- Nominations will also be made by the present Board of Directors which, in accordance with CU's by-laws, acts as a nominating committee.

Nominees selected by both Board and individual members will be voted on by CU members.

Consumers Union is a non-profit organization, therefore membership on the Board carries with it

no compensation for members' services in this capacity.

The structure of the Board and the manner in which members are nominated and elected is further described in the following excerpts from the CU by-laws:

"There shall be not less than 15 nor more than 30 directors, as the directors may from time to time determine, holding office for three years . . .

"There shall be three groups of directors. . . . Each group shall consist of approximately one-third of the total number of elected directors. . . .

"In addition to the above, there shall be a director elected by the employees, as a 'staff representative' . . .

"The method of election of directors shall be as follows: The Board of Directors shall act as a nominating committee to place in nomination candidates for such vacancies as may exist. Candidates may also be nominated by petition. Such petition shall be signed by one or more members in good standing and must be filed with the Secretary not later than two months prior to the date of the annual meeting.

"The ballots must be sent out to the membership at least one month before the date of election. The ballot shall designate the Secretary to act as a proxy to vote at the annual meeting as directed in said ballot. The form of said ballot shall be determined by the Board of Directors. Upon said ballot, however, the names of all candidates shall be alphabetically listed, and Board nominees shall be designated as such on said ballot. The Board of Directors shall include on the ballot a statement concerning the record of each nominee. Each nominee, upon accepting nomination, shall be required to answer such questions as may be put to him at the instance of the Board of Directors, concerning his record, financial interests and other connections. The Board of Directors may, in its discretion, by a two-thirds vote, reject any nominee whose past actions or record are such that the Board deems the candidacy of such nominee to be inimical to the best interests of this organization.

"All notices in respect to said nominations and election and the ballot for said election may be included in the regular publications of the organization.

"Only such ballots as are returned at least one week prior to the annual meeting shall be considered.

"All candidates shall be notified of the time and place of the opening and counting of ballots and shall have the right to be present in person or by a representative at such time and place."

CONSUMERS UNION is a non-profit organization chartered under the Membership Corporation Laws of New York State. Its purpose is to furnish unbiased, usable information to help families meet their buying problems, get their money's worth in their purchases, develop and maintain an understanding of the forces affecting their interests as consumers. Consumers Union has no connection with any commer-

CONSUMER REPORTS each month gives comparative ratings of a variety of products based on tests and expert examinations, together with general buying guidance, information on medical and health questions, and news of happenings affecting the consumer's interests. The Reports is the manual of informed and efficient consumers the country over.

THE BUYING GUIDE (published as the December issue of the Reports) each year brings together information from all the preceding issues with new material and special buying advice. Pocket-size, 384 pages, with ratings of several thousand products, the Buying Guide is an invaluable shopping companion. Every member gets a copy of the Guide with his membership.

BREAD & BUTTER reports each week on new and predicted price and quality changes in consumer goods, interprets Washington legislation as it affects consumers, reports government regulations and actions on the consumer front, advises on food buying and preparation.

SUBSCRIPTION FEES are \$4 a year, which includes subscription to the Reports and Buying Guide and Bread & Butter; \$3.50 without Bread & Butter (for foreign and Canadian memberships add 50¢). Reduced subscription rates are available for groups of 10 or more

cial interest and accepts no advertising; income is derived from the fees of members, each of whom has the right to vote for candidates to the Board of Directors. More than 70 educators, social workers and scientists sponsor Consumers Union and a national advisory committee of consumer leaders contributes to the formulation of policy (names of the members of the committee will be furnished on request).

(write for details). Library rates, for the Reports and Bread & Butter without the Buying Guide issue, are \$3.50; for the Reports alone, \$3.

Membership involves no obligation whatsoever on the part of the member beyond the payment of the subscription fee.

Set-Back In The Courts

While contraceptive products dangerous to health and life continue to be promoted through the mails, a scientific report analyzing such products and warning against them, must continue to be barred from the mails. Such, in effect, was the decision of Judge T. Alan Goldsborough of the U. S. District Court in Washington when, on January 17, he dismissed the action brought by Consumers Union against the Postmaster General. An appeal will be filed immediately with the Court of Appeals for the District of Columbia by Osmond K. Fraenkel, CU's counsel.

Judge Goldsborough's decision marks the first stage of what may prove to be a long-drawn-out court battle. For new members of CU, here is its background:

CU first published its "Report on Contraceptive Materials" in 1937. The idea of such a report didn't originate with the CU staff, however. Clinical and laboratory workers in the field, aware of the hardships and suffering resulting from the wide sale of unreliable and dangerous products, urged CU to publish a report and offered their help in its preparation.

The report was issued in the form of a 32-page pamphlet, and for several years it was sent through the mails and used by physicians, clinics and social workers; and by individuals who certified that they were married and had been advised by their physicians to use contraceptive products. The report was revised from time to time to cover new products and new test data.

Then someone complained to the Post Office, which thereupon barred the report from the mails. Appeals to the Post Office for removal of the ban were unavailing, and finally, after careful consideration by CU's Board of Directors, it was decided to take the case to the courts. A poll of CU members showed 96% supporting the decision of the Board.

The action of the Post Office was taken under a law which dates back to 1873. While the law specifically bans the mailing of contraceptive materials and information about their use, to quote the brief filed by CU's counsel, "It is settled . . . that the statute was not intended to be as all-embracing as its language would indicate. . . . The most recent case is *United States v. Nicholas*, 97 F. 2d 510. There the Circuit Court of Appeals said:

"We have twice decided that contraceptive articles may have lawful uses and that statutes prohibiting them should be read as forbidding them only when unlawfully employed. . . . Contraceptive books and pamphlets are of the same class and those at bar were therefore lawful in the hands of those who would not abuse the information they contained."

Despite the overwhelming support of most CU members both for the original publication of the report and for the court action to make its distribution possible, both publication and court action have been soundly denounced by a number of persons and organizations who object to the practice of contraception on religious grounds. To these we can only point out that the sale of contraceptive materials is a quarter-billion dollar business. Because much of this money goes for dangerous and unreliable products, health and life are being needlessly sacrificed. While such products continue to be sold, there is need for honest, unbiased information about them. And, to quote the brief again, CU's report "contains information only. It advocates no course of conduct."

Consumer Reports

"PAGE YOU NEED BEFORE YOU BUY"

"Because it was established for the very purpose of aiding families to buy wisely, to avoid waste and to maintain health and living standards, and because it is the largest technical organization providing such guidance, Consumers Union recognizes a special responsibility to the nation. In full awareness of that responsibility, we pledge ourselves to do everything in our power to help Americans as consumers make the greatest possible contribution to the national need."—FROM A RESOLUTION ADOPTED ON DECEMBER 10, 1941, BY THE DIRECTORS.

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REPORTS ON PRODUCTS

CHIEF TECHNICIAN: Sidney Wang

Ratings of products represent the best judgment of staff technicians or of consultants in university, governmental and private laboratories. Samples for test are in practically all cases obtained on the open market by CU's shoppers. Ratings are based on laboratory tests, carefully controlled use tests, the opinion of qualified authorities, the experience of a large number of persons, or on a combination of these factors. Even with rigorous tests, interpretation of findings is a matter on which expert opinion often differs. It is Consumers Union's pledge that opinions entering into its evaluations shall be as free from bias as it is possible to make them.

MEN'S SHIRTS

Tests and surveys show a large price increase plus quality deterioration in the last three years. CU here presents a survey of the market and makes recommendations on which brands are the best buys.

The ads picturing a man struggling like mad to get his ill-fitting shirt on, strike a note of sadness rather than comic relief, these days. For, with manufacturers skimping right and left on shirt dimensions, a great many men are finding themselves in just that uncomfortable predicament. Add to that a general deterioration in fabric and construction, plus higher prices, and you have a sad but true picture of the shirt market today.

FIT

Good fit contributes not only to the appearance of a shirt; it is essential for comfort and durability as well. Yet measurements of the 71 shirts (34 brands) tested by CU show that the average man has about a fifty-fifty chance of being correctly fitted.

THE YOKE, which takes the pull from arm motion, was skimped, more or less, in 51 of the 71 shirts tested. Furthermore, 14 of these 51 didn't even have gathers under the yoke to allow for shoulder motion. The result, if the material is weak, is a split somewhere on the back. If the material is strong, you'll have the uncomfortable feeling of having your shoulders hobbled. But cheer up. In the latter event the continued tugs will soon weaken the fabric, and your shirt will soon become torn but comfortable.

LENGTH of shirts is governed by WPB regulations, which allow 30 inches for shirt length instead of the pre-war standard of 33 inches. It would be reasonable to suppose that manufacturers would be well satisfied with this legitimate three-inch saving. But skimping goes on here, too; CU found 19 of the 71 shirts measured less than 30 inches in length. Which will make life a constant struggle against showing shirt-tails for the tall, rangy man.

OTHER PLACES where skimping means actual discomfort are at the armholes and chest. Yet ten shirts were found skimped at the armhole and 27 in chest dimensions. As to collar and sleeve, where too large measurements are almost as bad as too small, 13 collars and four sets of sleeves were found to be oversized after laundering. On many others, collars were cut large, but they shrank to correct size after laundering.

CONSTRUCTION

Construction is as important as fit in determining the quality of a shirt. And in the shirts tested, it seemed to have been given as little consideration.

FRONT PANELS of 13 of the shirts tested came only to the bottoms of the buttonholes, rather than the full length of the shirt. And in 17 shirts, the

panels were sewn with only one row of stitching instead of the customary two. Both these points are bad, for such construction means that the loose end is easily caught in ironing causing the material to rip.

PLACKETS on the sleeves of six shirts were found to be too small, so that the cuffs could not be laid flat for ironing.

"SECONDS" were sold as first quality in eleven shirts, which indicates poor inspection at the manufacturing end.

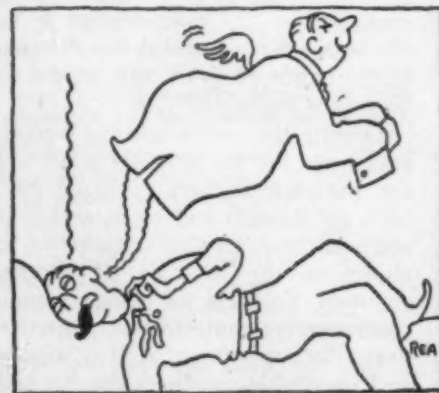
FABRIC

Thirty-one of the 71 shirts tested were found to be made of broadcloth having unbalanced weave (that is, an incorrect ratio of warp to filler threads). Thread count and tensile strength dropped about 10% below their average in 1941 tests.

COMPARISONS

The table on page 33 gives a price and quality comparison of twelve nationally available and private label brands of shirts tested in 1941 and retested this year. Prices of these brands, it can be seen, have risen from an average of \$1.63 in 1941 to an average of \$1.95 in 1944—a 20% increase, with quality much poorer. The former price range of these brands was \$1.19 to \$2; currently they cost from \$1.38 to \$2.50.

If you followed CU's recommendations as to "Best Buys" in 1941, you may have bought *Ward's Ashley* for \$1.29. Today, the best CU can recommend is *Broadhill*, at \$2.25, and that's available only to those who live in Los Angeles. You'll have to pay \$2.50 for the more widely available



"The ads picturing a man struggling like mad to get his ill-fitting shirt on, strike a note of sadness rather than comic relief . . ."

AMC brand. That's a 100% price increase, and no better quality.

To go back to generalizations, fabric quality has dropped an estimated 10%. Poor fit and construction account for at least another 10% quality deterioration. Add that 20% to the 20% price increase since 1941, and you have the sad story of one important item which is part of the cost of living.

WHAT TO LOOK FOR

These are the points of construction you can and should look for when you buy a shirt:

- The yoke should be so cut that it is curved slightly downward from the center, to allow for movement of the shoulders.
- There should be pleats or gathers at the back to produce fullness across the back. Preferably, the fullness should be distributed across the entire width of the yoke or at the two sides, rather than at the center only. Don't buy a shirt having no pleats or gathers.
- The top of the sleeve should start at the edge of the wearer's shoulder; poor dimensions here decrease wear and comfort.
- The sleeve should be so cut and inserted that the threads of the material run parallel to the crease when the sleeve is laid flat.
- The placket (sleeve opening) should be long enough so that the cuff can be laid flat during ironing. The placket should be bartacked or should have an insert of continuous fabric on the inner side, so that it will not tear under normal strain.
- Make sure that you get a collar that's not too high, particularly if you have a short neck. A high collar on a short neck looks awkward, is uncomfortable and gives poor wear.
- Stitching should be even, close and neat, with no loose ends of thread.
- Button and buttonhole panels should run the full length of the shirt front, with no free ends. They should be held with two rows of stitching.
- Buttons should be lustrous, of even thickness all around, and firmly attached. Buttonholes should be sewn with close, even stitches, with no loose edges. They should be bartacked at the ends.
- If you buy a shirt with a permanently stiffened collar, look for a guarantee of its lasting quality.

Drawing Comparisons

This comparison of 12 brand-name men's shirts tested by CU in 1941 and retested in 1944 pictures clearly the quality deterioration and price increase which have helped the cost of living reach an all-time high. In eleven of the twelve shirts, quality went down while price increased from 9¢ (Ward's) to 59¢ (Gimbel's Park-leigh). These brands are listed in order of their position in 1944 ratings. See ratings for the complete story on the 34 brands tested this year.

BRAND	YEAR	PRICE	FABRIC COUNT
AMC	1941	\$2.00	Extra High
	1944	2.50	Medium
Van Heusen	1941	2.00	High
	1944	2.25	Medium
Sears'	1941	1.35	High
	1944	1.46	Low
Arrow	1941	2.00	Medium
	1944	2.24	Medium
Penney	1941	1.49	High
	1944	1.65	Medium
Gimbel's	1941	1.39	Medium
	1944	1.98	Medium
Ward's	1941	1.29	High
	1944	1.38	Medium
Manhattan	1941	2.00	Medium
	1944	2.50	Medium
TruVal	1941	1.35	Medium
	1944	1.65	Low
Macy's Lansdowne	1941	1.49	Extra High
	1944	1.69	Medium
Schulte	1941	1.19	High
	1944	1.57	Low
Jayson Whitehall	1941	2.00	High
	1944	2.49	Low

RATINGS

The ratings below are based on laboratory tests for tensile strength, resistance to abrasion, thread count and weight of fabric. All the shirts tested were pre-shrunk; none shrank excessively under test. Conformity to standard size measurements, stitches per inch, shape of yoke, gathers at back, placket construction and types of panel facing were also considered.

BEST BUYS

The following brands of white broadcloth shirts were judged to offer the best value for the money in the order given:

Broadhill (Bullock's, Los Angeles). \$2.25. High-count broadcloth with

fairly good resistance to abrasion and good tensile strength. Collar cut large to compensate for shrinkage. Available at Bullock's Dep't Store, Los Angeles.

AMC (Associated Merchandising Corp., NYC). \$2.50. High-count broadcloth with fairly good resistance to abrasion and good tensile strength. Collar cut large to compensate for shrinkage. One of the shirts tested was a "second." Available at AMC Stores.¹

Townsmen (Hale Bros., Los Angeles). \$1.85. High-count broadcloth with fairly good resistance to abrasion and good tensile strength. Skimped slightly in chest measurement. One of the shirts tested was a "second." A "Best Buy" on the basis of price, but not as good quality as brands mentioned above. Available at Hale Bros. Dep't Store, Los Angeles.

Wings (Piedmont Shirt Co., Greenville, S. C.). \$2. Medium-count broadcloth with fairly good resistance to abrasion and good tensile strength. Skimped slightly in chest measurement. One of the shirts tested was a "second." A "Best Buy" on the basis of price, but not as good quality as the first two in the list above. Available nationally.

Van Heusen Country (Phillips-Jones Corp., NYC). \$2.25. Medium-count broadcloth with fairly good resistance to abrasion and good tensile strength. The best of the nationally advertised brands.

ACCEPTABLE

(In estimated order of quality)

Maycrest (The May Co., Los Angeles). \$3.50. High-count, 2-ply broadcloth with good resistance to abrasion and high tensile strength. Available at the May Dep't Store, Los Angeles.

Broadhill (see "Best Buys").

AMC (see "Best Buys").

Marshall Field (Marshall Field & Co., NYC). \$3.50. High-count, 2-ply broadcloth with fairly good resistance to abrasion and high tensile strength. Collar cut large to compensate for shrinkage. No gathers at yoke to allow for shoulder movement. Material in one of the shirts tested was found to have defects. Available at Marshall Field Dep't Store, Chicago.

Maycraft (The May Co.). \$2.25. High-count broadcloth with good resistance to abrasion and good tensile strength. Sleeves cut too long; skimmed in yoke

¹ The following are AMC stores: Hutzler's, Baltimore; Filene's, Boston; R. H. White, Boston; Abraham & Strauss, Brooklyn; John Shillito, Cincinnati; Wm. Taylor, Cleveland; Lazarus Co., Columbus, Ohio; Rike-Kumler, Dayton, Ohio; Hudson's, Detroit; L. S. Ayres, Indianapolis; Bullock's, Los Angeles; Burdine's, Miami; Boston Store, Milwaukee; Dayton Co., Minneapolis; Bloomingdale's, NYC; Capwell's, Oakland, Calif.; Strawbridge & Clothier, Philadelphia; Joseph Horne, Pittsburgh; Thalheimer's, Richmond, Va.; Forman's, Rochester, N. Y.; The Emporium, San Francisco; Stix, Baer & Fuller, St. Louis.

measurement. Available at the May Dep't Store, Los Angeles.

Wings (see "Best Buys").

Townsmen (see "Best Buys").

Lion of Troy Cat. No.—6KU29 (Chicago Mail Order Co., Chicago). \$2.98 plus postage. High-count broadcloth with fairly good resistance to abrasion and high tensile strength. Skimped slightly in armhole and chest measurements. Collar cut large to compensate for shrinkage. Available by mail order.

Van Heusen Country (see "Best Buys").

Fruit of the Loom (Fruit of the Loom, Inc., Providence, R. I.). \$1.75. Medium-count broadcloth with fairly good resistance to abrasion and good tensile strength. Skimped in chest measurement. Manufacturer states that this price line is no longer manufactured. It may, however, be available in many retail stores.

Fashion Tower Cat. No.—30 (Sears, Roebuck & Co.). \$1.46 to \$1.56 plus postage. Low-count broadcloth with fairly good resistance to abrasion and fair tensile strength. Skimped slightly in yoke and chest measurements. Collar larger than marked size. Available by mail order.

Brixton (The Ernest Kern Co., Detroit). \$2.50. Medium-count broadcloth with fair resistance to abrasion and good tensile strength. Skimped slightly in yoke measurement. Collar cut large to compensate for shrinkage. One of the shirts tested was a "second."

Arrow Hitt (Cluett Peabody & Co., Troy, N. Y.). \$2.24. Medium-count broadcloth with fair resistance to abrasion and good tensile strength. Skimped slightly in yoke and armhole and skimmed in chest measurements. One of the shirts tested was a "second." Available nationally.

Filene's (Filene's, Boston). \$3.89. Low-count, 2-ply broadcloth with fair resistance to abrasion and high tensile strength. Shirts tested varied in their conformance to size standards: one shirt was skimmed in the yoke and slightly skimmed in chest and length measurements, with collar cut large to compensate for shrinkage; one shirt was skimmed slightly in length and skimmed in yoke measurement. Available at Filene's Dep't Store, Boston.

Towncraft (J. C. Penney Co., NYC). \$1.65. Medium-count broadcloth with fair resistance to abrasion and fair tensile strength. Skimped in yoke and collar measurements. One of the shirts tested was a "second." Available nationally at Penney Stores.

Brixton (The Ernest Kern Co.). \$3.95. Low-count 2-ply broadcloth with fair resistance to abrasion and high tensile strength. Skimped in yoke measurement. Collar cut large to compensate for shrinkage. One of the shirts tested was a "second."

Parkleigh (Gimbel Bros., NYC). \$1.98. medium-count broadcloth with fair re-

sistance to abrasion and fair tensile strength. Skimped slightly in length and yoke measurements. Available at Gimbel's Dep't Stores in NYC, Philadelphia, Pittsburgh and Milwaukee.

Ward's Cat. No.—2781 (Montgomery-Ward & Co.). \$1.38 plus postage. Medium-count broadcloth with fair resistance to abrasion and fair tensile strength. Skimped in yoke measurement. Available by mail order.

Manhattan Duke Setlo (Manhattan Shirt Co., NYC). \$2.50. Medium-count broadcloth with fairly good resistance to abrasion and good tensile strength. Skimped slightly in length and yoke. Available by mail order.

Lansdowne (R. H. Macy & Co., NYC). \$1.69. Medium-count broadcloth with fair resistance to abrasion and good tensile strength. Skimped in armhole measurement. Available at Macy's Dep't Store, NYC.

Horton Collarite (Phillips-Jones Corp., NYC). \$1.95. Low-count broadcloth with fair resistance to abrasion and fair tensile strength. Collar cut larger than marked size. Available nationally.

Supre-Macy No. 1 (R. H. Macy & Co., NYC). \$2.98. Low-count, 2-ply broadcloth with fair resistance to abrasion and high tensile strength. Skimped in yoke and slightly skimmed in length measurements. Collar cut large to compensate for shrinkage. No gathers at yoke to allow for shoulder movement. One of the shirts tested was a "second." Available at Macy's Dep't Store, NYC.

TruVal (TruVal Manufacturers, Inc., NYC). \$1.65. Low-count broadcloth with fair resistance to abrasion and fair tensile strength. Skimped slightly in yoke measurement. Collar cut larger than marked size. Available nationally except in California.

Pilgrim Nobility Cat. No.—132 (Sears-Roebuck). \$2.60 to \$2.70 plus postage. Medium-count, 2-ply broadcloth with good resistance to abrasion and good tensile strength. Shirts tested varied in their conformance to size standards. One shirt was skimmed in yoke and armhole measurements; the other, skimmed in length, yoke, armhole and chest. Available by mail order.

NOT ACCEPTABLE

The following were considered "Not Acceptable" because of poor workmanship, poor conformance to size standards or poor material, or a combination of these factors.

Leeds De Luxe (Schulte Cigar Stores, NYC). \$1.88. Considerable variation in material and construction among samples tested. Generally, low-count broadcloth with fair resistance to abrasion and fair tensile strength. Only one row of stitching used on front panel. On one shirt, panel reached only to end of buttonholes, rather

than full length of shirt. Sleeve placket opening on one shirt too small to allow easy ironing of cuffs. All skimmed in yoke measurement; collars of two shirts cut larger than marked size to compensate for shrinkage; one shirt skimmed in chest measurement. Available at Schulte Cigar Stores.

Leeds (Schulte Cigar Stores). \$1.57. Low-count broadcloth with fair resistance to abrasion and good tensile strength. One shirt tested had yoke cut straight rather than curved. Plackets on all shirts tested too small to allow easy ironing of cuffs. Skimped in yoke measurements. Available at Schulte Cigar Stores.

Jayson Super-Whitehall (F. Jacobson & Co., NYC). \$2.75. High-count broadcloth with good resistance to abrasion and good tensile strength. Skimped in yoke and chest measurements. Front panels sewn with one row of stitching, and came only to end of buttonholes rather than full length of shirt. Sleeves and collar cut larger than marked size. No gathers at yoke to allow for shoulder movement. Available nationally.

Sandringham (Gimbel Bros.). \$2.95. Medium-count broadcloth with fairly good resistance to abrasion and good tensile strength. Skimped in length, yoke and chest measurements. Front panel sewn with one row of stitching and came only to end of buttonholes rather than full length of shirt. No gathers at yoke to allow for shoulder movement. Available at Gimbel's Dep't Store, NYC.

Excello (Filene's). \$2.95. Medium-count broadcloth with fair resistance to abrasion and good tensile strength. Skimped in yoke and chest measurements; slightly skimmed in length. Collar cut large to compensate for shrinkage. Front panel sewn with one row of stitching and came only to end of buttonholes rather than full length of shirt. Available at Filene's Dep't Store, Boston.

Fordham Cat. No.—KU52 (Chicago Mail Order Co.). \$1.79 plus postage. Medium-count broadcloth with fair resistance to abrasion and good tensile strength. Skimped in length and yoke measurements. Plackets too small to allow easy ironing of cuffs. Available by mail order.

Jayson Whitehall (F. Jacobson & Co.). \$2.49. Low-count broadcloth with fair resistance to abrasion and good tensile strength. Skimped in length, yoke and chest measurements. Collar cut large to compensate for shrinkage. No gathers at yoke to allow for shoulder movement. Available nationally.

Ritz Victory (Ernest Kern Co.). \$1.79. Low-count broadcloth with fair resistance to abrasion and fair tensile strength. Skimped slightly in yoke measurement. Collar measurement larger than marked size. No gathers at yoke to allow for shoulder movement.

Canned Meats

"Nutritious TREET is ALL delicious meat." So say the headlines of a *Treet* ad, set above a mouth-watering color reproduction of sliced *Treet*, candied sweet potatoes and parsley sprigs. Which is at least passing strange, in view of the *Treet* label, listing added water—in addition to meat, flavoring and preservatives—among *Treet* ingredients. And much more than passing strange, when you consider the chemical analysis in CU's laboratories: 28% fat, and some 6% of other ingredients such as salt, sugar, sodium nitrite, and sodium nitrate (the two latter used to cure the meat).

Nor is *Treet* an exception; in fact it is fairly typical of the "luncheon meats" which were analyzed. The moral of the story is simply that when you spend your 35¢ or so and your meat-points for a 12-ounce container of canned meat, you may not be getting the bargain you thought you were. That isn't to say you shouldn't buy canned meat. Some people like its flavor; others find its convenience makes up for any shortcomings. But you should, at least, know what you're buying.

TYPES TESTED

LUNCHEON MEAT is the generic term for a hard loaf, consisting mainly of chopped pork, ham, or beef, or mixtures of these, plus sugar, spices, curing salts and sometimes added water. The loaf can be sliced and used cold, in the same way as other cold cuts; or it can be broiled or baked, and used as a hot dish. Luncheon meats are sold under a variety of names: spiced ham, chopped ham or pressed ham; or under individual brand names, as *Spam*, *Treet*, *Mor*, *Snack*, etc.

SPREADS include deviled ham and so-called "potted meat food products." Deviled ham is finely ground ham highly spiced. But "potted meat" is the final resting place for almost any scraps the manufacturer may have left over after his other products have been made. The labels make interesting reading. *Wilson's Potted Meat Food Product*, for example, lists the following ingredients: beef tripe, oxlips, beef cheek trimmings, beef broth, pork snouts, pork under-

While these are convenient for use in household emergencies, they are generally high in price and points. CU presents ratings of available types and brands.

lips, water, beef hearts, beef cheek meat, dried beef trimmings, salt, flavoring, onion powder, spices, sodium nitrite. Note that the above is the recipe for a twentieth century potted meat—not for a witch's brew.

Most of the variety meats included are either ration-free or at most one or two points to the pound; prices are 10¢ to 20¢ a pound. With some of these variety meats, a food grinder, spices, and a little ingenuity, you can make your own potted meat, which will be much more economical and probably much more satisfactory.

VIENNA SAUSAGE, the third type of meat product tested, is a sausage made of beef and pork, with added spices, and packed in water.

INSPECTION

Look for the label statement "U.S. Inspected and Passed by Department of Agriculture Est.—" on any can of meat you buy. Avoid any canned meat without this label, for such meat

is more than likely to have been processed without any sanitary supervision, possibly from diseased or decomposed carcasses.

The inspection stamp of the Department of Agriculture is your assurance that the meat was packed under the supervision of government inspectors. But the inspection seal relates only to sanitary conditions; it is *not* an assurance of quality; it is in no sense a grade label.

Much improvement has been made in the processing of meat in recent years. For one thing, a cold storage process has been developed for pork, so that the consumer is freed of the danger of trichinosis. (This is, of course, true only of inspected meat. Consumers who buy "bootleg" or black market products without the government's inspection seal do so at their own risk.)

Incidentally, it is worth noting here that, despite belief to the contrary, processing has little effect on the nutritive value of the meat. Protein and the essential "amino acids" of the meat are left intact, and, though some of the vitamin B₁ is lost, enough remains to make a substantial contribution to the diet.

STORAGE

Many still retain the old belief that any canned food must be taken out of the container in which it was made when the food is to be stored. Actually, this belief has no foundation. And if it's convenient to keep meat in the can there's no reason for not doing so. The negligible amounts of metals which may become dissolved on the products won't harm health, though long storage may result in a slightly metallic taste. Nor is there any mysterious "ptomaine" which lurks waiting for can-stored foods.

The main thing to remember about storing canned meats—whether you keep them in the original container or remove them—is to keep them cold. For meats—even spiced canned meats—are perishable foods, and spoiled meats are dangerous to health. If you store them in the original container, cover the can; if you remove them from the can, keep them in a covered dish or wrap in wax paper; but in any case, place



And a little water!

the meat in a cold part of your refrigerator, and don't store for more than a day or two.

HOW CU TESTED

Nineteen brands of luncheon meat, four brands of deviled ham, four brands of potted meat and two brands of Vienna sausage were included in CU's tests. Analyses were made to determine fat content, water content and percentage of water-soluble substances (including sugar, flavoring, curing agents, preservatives, etc.). All samples were tasted for off-flavors, but brands are not rated on a flavor basis, since a highly-spiced brand which would please some people would not be satisfactory to those who prefer mildly-seasoned foods.

FAT CONTENT: Federal specifications for pork luncheon meats call for a maximum permissible fat content of 25%. Of the 19 brands tested (of which three contained meat other than pork), 12 met this specification; the remaining seven had a fat content above the maximum, the amount of fat ranging up to 33%. These brands are listed separately in the ratings.

Although there are no Federal Standards for deviled ham, the fat range was found similar to that in the luncheon meats. All except *Underwood* (incidentally, the most expensive) met the 25% limit.

Potted meats and Vienna sausages were found considerably lower in fat content than luncheon meats or deviled ham.

WATER CONTENT: Water is a natural ingredient of all meat, and no distinction was made, in testing, between the water which is a natural component, and added water. The basis of judgment was the total water content of the product.

Of the luncheon meats and deviled hams tested, eleven declared the presence of added water or broth on the label. Apparently, however, the amount of water added to these prod-

ucts was not great, for water content was found, for the most part, to be quite close to the average of 55% (which is a normal figure for pork).

All potted meats and Vienna sausages declared the presence of added water, and the average found in these was 10% above the average water found in the other meat products.

WATER SOLUBLE SUBSTANCES include mostly salt and sugar, plus smaller amounts of sodium nitrite and sodium nitrate—substances used for curing and preserving—and traces of other substances which dissolve in water.

RATINGS are in order of cost per ounce of "meat solids"—meat from which water, fat and water-soluble substances have been removed—within each type. In general, deviled hams are the most expensive, and potted meats the cheapest.

ACCEPTABLE

In order of increasing cost per dry oz. of "meat"—figure in parentheses.

PORK OR HAM PRODUCTS

(Luncheon Meats)

Armour's Star Chopped Pressed Ham (Armour & Co., Chicago). 35¢ for 12-oz. can (20¢). Available nationally.

Tang (Cudahy Packing Co., Chicago). 35¢ for 12-oz. can (20¢). Available nationally.

Brunch (Tobin Packing Co., Ft. Dodge, Iowa). 35¢ for 12-oz. can. (22¢). Available in large cities in northern U. S.

Snack (John Morrell & Co., Ottumwa, Iowa). 39¢ for 12-oz. can (24¢). Available nationally.

Honey Brand Chopped Ham (Hygrade Food Products Corp., NYC). 46¢ for 12-oz. can (23¢). Available nationally.

Rath Spiced Ham (Rath Packing Co., Waterloo, Iowa). 49¢ for 12-oz. can (28¢). Available in East and large West-coast cities.

Morrell Chopped Canned Ham (John Morrell & Co.). 45¢ for 12-oz. can (29¢). Available nationally.

Monarch Spiced Ham (Reid, Murdoch & Co., Chicago). 49¢ for 12-oz. can (30¢). Available nationally.

Hormel Spiced Ham (Geo. A. Hormel & Co., Austin, Minn.). 49¢ for 12-oz. can (30¢). Available in New England. *The following contained more than 25% fat.*

Treet (Armour Co.) 35¢ for 12-oz. can (22¢). Contained 28% fat. Available nationally.

Spiced Luncheon Meat (General Food Sales Co., NYC). 35¢ for 12-oz. can. (24¢). Contained 32.9% fat.

Mor (Wilson & Co., Chicago). 35¢ for 12-oz. can (24¢). Contained 27.5% fat. Available nationally.

Broadcast Redi-Meat (Illinois Meat Co., Chicago). 39¢ for 12-oz. can (24¢). Contained 26% fat. Available nationally.

Spam (Geo. A. Hormel & Co.). 43¢ for 12-oz. can (27¢). Contained 28.2% fat. Available nationally.

Dan-Dee (Stahl-Meyer, Inc., NYC). 45¢ for 12-oz. can (28¢). Contained 26% fat. Available nationally.

Rath Spiced Luncheon Meat (Rath Packing Co.). 49¢ for 12-oz. can (32¢). Contained 27.5% fat. Available nationally.

Deviled Ham

Cudahy's Puritan (Cudahy Packing Co.). 15¢ for 3-oz. can (34¢). Available nationally.

Wilson's (Wilson & Co.). 18¢ for 3-oz. can (44¢). Available nationally.

Libby's (Libby, McNeill & Libby, Chicago). 15¢ for 3-oz. can (35¢). Available nationally.

Underwood (Wm. Underwood Co., Boston). 25¢ for 3-oz. can (62¢). Contained 34.9% fat. Available nationally.

PORK AND BEEF (OR VEAL) PRODUCTS

Armour's Star Potted Meat Food Product (Armour & Co.). 10¢ for 5½-oz. can (14¢). Available nationally.

Libby's Potted Meat Food Product (Libby, McNeill & Libby). 11½¢ for 5½-oz. can (16¢).

Broadcast Potted Meat Food Product (Illinois Meat Co.). 12¢ for 5½-oz. can (17¢). Available nationally.

Wilson's Potted Meat Food Product (Wilson & Co.). 12¢ for 5-oz. can (17¢). Available nationally.

Prem (Swift & Co., Chicago). 35¢ for 12-oz. can or jar (22¢). Luncheon meat. Available nationally.

Honey Brand Party Loaf (Hygrade Food Products Corp.). 39¢ for 12-oz. can (25¢). Luncheon meat. Available nationally.

Armour's Star Veal and Pork Loaf (Armour & Co.). 29¢ for 7-oz. can (24¢). This product lists cracker meal as one of the ingredients. Tests indicate about 3% starch which would be equivalent to about 4 to 5% cracker meal. Available nationally.

Armour's Star Vienna Sausage (Armour & Co.). 13¢ for 4-oz. can (27¢). Packed in water. Available nationally.

Broadcast Vienna Sausage (Illinois Meat Co.). 13¢ for 4-oz. can (32¢). Packed in water. Available nationally.

*Let's All Back
The Attack*

Buy War Bonds

Rayon Stockings

... are much improved in appearance and durability since they came into general use. This article discusses new developments and gives suggestions to help you get maximum wear from your hosiery.

Feminine legs had glamour long before the era of cobweb silks and gossamer nylons. And chances are they'll go on having it. But when rayon survived war demands as the sole fiber adaptable to full-fashioned hosiery manufacture, glamour prospects were not too bright. Rayon had not been popular as a substitute for silk hose, and manufacturers had done very little to develop it as a hosiery fiber. The transition from silk and nylon to rayon was sudden, and both producers and manufacturers were caught unawares. Rayon had been produced mainly for the underwear and dress industry and was not applicable to hosiery. Methods of "throwing" (preparing the yarn), knitting and finishing used for silk were unsatisfactory for rayon hosiery. In short, the technical research which should precede the introduction of a new use for a fiber (and is a long-term process) in this case had to proceed not only speedily but together with the actual manufacture of the product.

Initial results, as every woman knows, were far from good: the stockings stretched, bagged at the knee and ankle, didn't last long, were heavy and shiny, and the dyeing job left much to be desired (see the *Reports*, July 1942).

Most of these problems have now been more or less solved. As long as war needs remain high, rayon producers won't be able to supply the high tensile strength yarn necessary for the best full fashioned hose; but they have experimented with different weights, filaments, twists, constructions and mesh knits and are now using various types of rayon—bemberg, viscose, acetate—to good advantage.

Manufacturers are adapting their production methods to rayon—a fiber they were not familiar with—and are making progress. Retailers have helped inform consumers what to ex-

pect from the "substitute" stockings and how to care for them.

Consumers themselves, through complaints and suggestions based on experience, have stimulated the industry to make the improvements needed to produce reasonably acceptable wartime hosiery. For the most part, women are approaching the stocking problem with the recognition that rayon, as a different material from silk or nylon, has different properties and limitations. They have accordingly revised their buying and laundering habits and are obeying the few simple rules necessary to minimize sagging and tearing. And they are accepting the shorter rayon hose which make allowance for stretch, and provide insurance against having the buckle of a garter belt or girdle clipped to the comparatively weak leg of the stocking rather than to the reinforced welt. They are even accepting the cotton reinforcements at

the heel, toe and shadow heel as a necessary addition for increased strength at these vulnerable points.

When you buy rayons, the following pointers are well worth remembering:

1. *Buy hosiery to fit your needs.* A "stocking wardrobe," with different hose for sport, street and dress wear is particularly useful with rayons. Don't get sheer stockings for everyday use if you expect good wear; in fact, production of sheers is limited by the government's textile allocation program and supplies are therefore inadequate. But medium-weight hosiery for everyday wear will be available in larger quantities.

Weights of rayon stockings are measured by "denier," which, in buying practice, is roughly comparable to "thread" in silk hose. Get 50-denier for sheer "dress" hose (equivalent to three-or four-thread); 65- to 75-denier for everyday wear (equivalent to five-or six-thread); and 100-denier for heavy duty (equivalent to seven-thread in silk).

Keep in mind the "gauge" as well. It refers to the number of needle stitches per inch-and-a-half. Hence, a 51-gauge stocking is a finer, closer knit (and so more desirable) than a 45-gauge stocking. Buy at least 51-gauge for 50-denier rayons, 48-gauge for 65-denier rayons and 45-gauge for 75-denier; 100-denier should be at least 42-gauge. Always inquire about the denier and gauge of rayon stock-



The first rayons were coarse and heavy, but some recent models approach silk in sheerness and general appearance.

ings; the denier will tell you whether it is a "dress" or "heavy-duty" stocking; the gauge indicates fineness of knit. Try to get higher gauge than indicated above; never accept less.

2. *Get the right size.* Remember that rayon has comparatively little snap-back or elasticity; therefore you must be well fitted in both size and length. Don't rely on what you used to buy in silk or nylon. Your correct size is the number of inches from heel to toe of your foot. Only if you have an exceptionally narrow foot should you get a size smaller than that.

Make sure, too, that you get the right length. Many manufacturers are making their rayons about two inches shorter than they made their silks and nylons, to allow for stretching. Get stockings just long enough to allow the garters to be fastened into the reinforced welt rather than the stocking leg; stockings which are too long tear and run too easily; too short hosiery will burst at the knee when you sit down. Both the length of your girdle or garter belt and the proportions of your leg must be taken into consideration.

3. *Check the reinforcements.* The garter welt should have enough elasticity to stretch easily to about 11½ or 12 inches. Check also for reinforcements at the welt, heel, sole and toe; cotton reinforcements are more durable than rayon, and adequate re-

inforcement is essential if the stockings are to wear well. Be sure the reinforcements are neat, however; they should not bulge from the rest of the hose.

4. *Get two or more pairs of the same type and color when you buy.* This is so that, when one stocking tears, the survivor can be paired up with others and worn, rather than discarded.

5. *Experiment with different rayons and different knits.* Some women prefer mesh knits, which have added elasticity, to wear with suits; some of these are run-proof, and wear exceptionally well. Some find vertical-ribbed rayon stockings seem to make legs look more slender, and look well with sport clothes. Many women are developing preferences on the basis of drying time, finish, etc.

All rayon hose must be handled with care. For you won't get maximum wear and satisfaction unless you:

1. *Wash them before wearing.* This may materially increase the life of your rayons. Washing removes the "sizing" and makes it easier for the stocking to conform to the shape of the leg, and with less strain.

2. *Put them on carefully.* Roll the stocking down and draw gently up the leg, straightening the seams as you go along. Don't twist the stocking to straighten the seam. If it is crooked, take off the stocking and

start over again. Fasten the garter to the welt, not the leg, of the stocking. Be careful of rings, finger nails and sharp edges of garter fasteners; these may cause snags and runs.

3. *Wear a garter belt or a girdle with rayon hose.* More than any other stockings, rayon will drop and sag if round garters are worn, and constant pulling on the hose to keep them up may tear them.

4. *Wash them immediately after wearing.* This prevents soil from setting in the yarn, making washing more difficult. Rayon should be treated very gently while it is being washed. Launder in lukewarm water, using a neutral soap. Squeeze water through the stockings (never rub). Rinse well, squeeze out water (but never wring or twist) and hang them up to dry on a smooth rod away from direct heat or sunlight. Don't use clothespins.

5. *Dry them thoroughly before wearing.* See that the heavier parts—seams and reinforcements—of the hose are dry, too. Drying time varies with the weather, the kind of rayon, its weight, where the stockings are hung, etc.; but 24 to 48 hours are needed for complete drying. To hasten drying somewhat, roll wet stockings in a towel and knead out excess moisture after you have squeezed out as much water as you can. Unroll immediately and lay flat on a dry towel.

A coat of wax on a floor has not only an esthetic, but a very practical value. For wax provides a protective coating which keeps dirt and grime from being ground into the floor surface, thus preserving its appearance and making it easier to clean.

There are three general types of floor waxes: *paste*, *liquid* (liquefied paste) and *water-emulsion* (no-rub or self-polishing).

PASTE AND LIQUID WAXES

The oldest of the three types, paste wax, is simply spread on with a cloth or mop, allowed to dry, and then buffed with a soft, weighted cloth or an electric buffer. Unless you have an electric buffer, the job is time-consuming and back-breaking.

Paste waxes are usually mixtures of a hard wax (such as carnauba), a soft wax (such as candelilla, beeswax or paraffin) and a "carrying agent" or solvent (such as naphtha or tur-

FLOOR WAX

Ratings of types and brands on the market, with instructions on how they may best be used to protect and beautify floors.

pentine). Liquid wax is essentially the same as paste wax, except that enough solvent is used to dilute the product to liquid form.

Most paste and liquid waxes are water-resistant—much more so than the self-polishing type. Among those tested by CU only one—*Wards*

Liquid Wax—was affected by water.

Because of the solvents used in them, paste and liquid waxes are inflammable, and they can present a fire hazard if proper care is not taken in their application and storage.

WATER-EMULSION WAXES

The newest type of floor wax is the water-emulsion (also called self-polishing or no-rub) variety. It is composed mainly of a hard wax (or a mixture of waxes) and water, combined by means of an "emulsifying agent." The best products of this type contain carnauba wax as the chief ingredient.

In the past, self-polishing waxes were unsatisfactory because they had very poor resistance to water. Now, however, new emulsifiers are available which make possible the production of water-resistant self-polishing waxes. These agents evaporate as the wax dries, and leave behind a

to durable, water-resistant, hard wax film.

Unfortunately, relatively few of the self-polishing waxes on the market contain such water-resistant emulsifier, CU's tests show. Of the 38 waxes tested, although 22 made claims to water-resistance, only four bore out the claim; however, four others, which made no mention of water resistance, were found actually to be water resistant.

If you wish to test the water-resistance of a wax, simply apply some of it to a small area. When the film has dried overnight, sprinkle on a few drops of water. If the wax is not water-resistant, the spots will turn white in a few minutes.

A water-resistant, self-polishing wax is at least as durable, if not more so, than liquid or paste wax, because the latter contain paraffin or other soft waxes which are less resistant to wear than the hard waxes used in the emulsion type.

Water-emulsion wax is applied with a soft cloth or applicator which has been thoroughly dampened with the emulsion. It is spread in a thin coat evenly over the surface. In about 20 minutes, a hard, lustrous film is formed. Buffing is unnecessary, though it will produce an even higher luster. Because of its ease of application and its general superiority over other types, many housewives have come to prefer self-polishing wax to the paste and liquid varieties.

CARE OF FLOORS

Keeping your floor in good condition can be made easier if you follow these suggestions:

Finish any new wood floor with a floor seal and a coat of shellac or varnish. This takes skill and energy. If you're not well equipped with both, better leave the job to a professional floor finisher.

Unless the floor has just been shellacked or varnished, wash it with soap and water, then rinse and allow to dry thoroughly before applying any wax. Wax on a wet, dirty or oily surface will be rough and streaked when dry.

To do a thorough waxing job on an unwaxed floor, you must use at least two coats. Paste wax is best for the first coat if the job is done by a professional, or if a mechanical buffer is available; otherwise use a water-resistant wax emulsion. For succeeding coats, use any good self-polishing wax. In applying paste wax two thin coats of wax, rather than a single

thick one, add durability. On top of these, apply a coat of ordinary self-polishing wax to maintain the finish. You'll save much time and effort by frequent (every week or two) use of self-polishing wax.

Patch any worn spots as soon as they begin to show, to cut down the need for frequent all-over waxing. Do patching in the same way the original wax was applied, layer by layer. Work the wax slightly past the worn spot, then buff well to erase overlap marks.

SLIPPERY FLOORS

Scatter rugs present a hazard on any waxed floor. Play safe by either tacking the rugs to the floor, or sewing old jar rings or other pieces of thin rubber to the entire bottom of the rugs.

TESTS

CU tested 72 popular brands of floor waxes: 38 self-polishing, 21 paste waxes and 13 liquefied pastes. Ratings are based chiefly on the quality of the film produced; paste and liquid waxes were also tested for possible hazard from inflammability. To be considered good, it was required that the waxes give a finish that was hard, clear and lustrous. Water resistance is important only for kitchen floors and for other surfaces where water is likely to be spilled.

In order of increasing cost per ounce of dry film—figure in parentheses—within each group.

WATER EMULSION WAX

EXCELLENT

(These waxes dried to a hard, clear, colorless film.)

O-Cedar (O-Cedar Corp., Chicago). \$1.45 for ½ gal. bottle (20¢). Not water resistant. Available nationally.

Nairn (Congoleum-Nairn Inc., Kearny, N.J.). 20¢ for ½ pt. can (20.5¢). Not water resistant. Available nationally.

GOOD

(These waxes dried to a fairly hard, clear film.)

Gimbels Greeley (Gimbel Bros., NYC). \$1.25 for 1 gal. can (10¢). Not water-resistant. Available at Gimbel's Dept. Stores in NYC, Philadelphia, Pittsburgh, Milwaukee.

Gimbels (Gimbel Bros.) \$1.84 for 1 gal. can (11.5¢). Not water-resistant. Available at Gimbel's, NYC.

Gargoyle (Socony Vacuum Oil Co., NYC) \$1.09 for ½ gal. can (12.5¢). Water-resistant. Available nationally.

Aerowax (Midway Chemical Co., Jersey City, N.J.). 45¢ for 1 qt. bottle (13¢). Not water-resistant. Available nationally.

Salem Witch Brand (Salem Chemical & Supply Co., Salem, Mass.). 25¢ for 1 pt. can (14¢). Not water-resistant.

Wards Supreme Quality Cat. No.—86-528. (Montgomery, Ward). 57¢ plus postage for 1 qt. can (14.5¢ plus postage). Not water-resistant. Available by mail order.

Butcher's (Butcher Polish Co., Boston, Mass.). 79¢ for 1 qt. bottle (16¢). Not water-resistant. Available in North East and North Central States.

Westwood Speed-Gloss (Western Auto Supply Co., Los Angeles). 29¢ for 1 pt. can (16¢). Not water-resistant. Available in Western Auto Supply Stores, in Western States.

CD Cat. No.—M5552. (Cooperative Distributors, Inc., NYC). 62¢ plus postage for 1 qt. can (16.5¢ plus postage). Not water-resistant. Available in NYC and by mail order.

Supre-Macy (R. H. Macy & Co., NYC). \$1.39 for ½ gal. can (17.5¢). Water-resistant. Available at Macy's Dept. Store, NYC.

Devoe (Devoe & Reynolds Co., NYC). 67¢ for 1 qt. can (18¢). Not water-resistant. Available nationally.

Dri-Brite (A. S. Boyle Co., Jersey City). 79¢ for 1 qt. can (19¢). Not water-resistant. Available nationally.

No-Rub (Wilbert Products Co., NYC). 33¢ for 1 pt. bottle (20¢). Not water-resistant. Available nationally.

A-Penn (A-Penn Oil Co., Butler, Pa.). 37¢ for 1 pt. bottle (20.5¢). Not water-resistant. Available nationally except West Coast.

Tavern (Socony-Vacuum Oil Co., NYC). 98¢ for 1 qt. bottle (23¢). Not water-resistant. Available nationally.

Sollo (Kaufmann's, Pittsburgh). 69¢ for 1 qt. can (25¢). Not water-resistant. Available at Kaufmann's Dep't Store, Pittsburgh.

Simoniz (The Simoniz Co., Chicago). 59¢ for 1 pt. bottle (26¢). Water-resistant. Available nationally.

Tick (Derris-Inc., NYC). 39¢ for 1 pt. bottle (29.5¢). Water-resistant. Available in New York and New England.

Johnson's Glo-Coat (S. C. Johnson & Son, Inc., Racine, Wisc.). 59¢ for 1 pt. bottle (38¢). Not water-resistant. Available nationally.

FAIR

(These waxes dried to a satisfactorily hard and fairly clear film.)

Co-op Emulsified (National Co-operatives, Inc., Chicago). 49¢ for 1 qt. bottle (14¢). Not water-resistant.

Available nationally in Co-op stores.
Old English (A. S. Boyle Co., Jersey City, N.J.). 79¢ for 1 qt. bottle (18¢). Water-resistant. Available nationally.
Maid of Honor Cat. No.—11F2501 (Sears-Roebuck). 57¢ plus postage for 1 qt. can (18.5¢ plus postage). Not water-resistant. Available by mail order.

POOR

(These waxes dried to a soft film.)
Wards Standard Quality Cat. No.—86-4239 (Montgomery Ward). 35¢ plus postage for 1 qt. can (9¢ plus postage). Not water-resistant. Available by mail order.
Teffy (Twin City Shellac Co., Brooklyn, N.Y.). \$1.09 for 1 gal. can (9¢). Not water-resistant. Available at Strauss Auto Supply Stores in Metropolitan NYC.
Dan-Dee (Twin City Shellac Co., Brooklyn, N.Y.). 43¢ for 1 qt. bottle (10.5¢). Not water-resistant. Available in large Eastern cities, and in department stores in Western States.
Dacco (D. A. Collins Mfg. Co., Brooklyn, N.Y.). 29¢ for 1 qt. bottle (10.5¢). Not water-resistant. Available on East Coast and New England.
Dart (Ultra Chemical Works, Inc., Paterson, N.J.). 25¢ for 24 oz. can (11.5¢). Not water-resistant. Available nationally.
Grants (W. T. Grant Co., NYC). 45¢ for 1 qt. bottle (13¢). Not water-resistant. Available nationally at Grant Stores.
Merit Cat. No.—11F2511 (Sears-Roebuck). 37¢ plus postage for 1 qt. can (13¢ plus postage). Not water-resistant. Available by mail order.
Red Cross (Federal Paper Corp., Brooklyn, N.Y.). 23¢ for 1 pt. can (14¢). Not water-resistant.
Macy's Special (R. H. Macy & Co.). 37¢ for 1 qt. can (14¢). Water-resistant. Available at Macy's Dept. Store, NYC.
Woolco (F. W. Woolworth Co., NYC). 25¢ for 1 pt. bottle (14.5¢). Not water-resistant. Available nationally at Woolworth Stores.
Elm Farm (Elm Farm Foods Co., Boston, Mass.). 55¢ for 1 qt. bottle (15¢). Not water-resistant. Available in Elm Farm Stores, in New England States.
Lustrwax (Lustrwax Co., Kansas City, Mo.). 59¢ for 1 qt. bottle (15¢). Not water-resistant. Available in Colorado, Iowa, Missouri, Kansas, Nebraska, Oklahoma, Texas, South Dakota and parts of Illinois.
Pearl (Laurans Bros. Inc., New Bedford, Mass.). 33¢ for 1 pt. bottle (19.5¢). Not water-resistant.
Liquid Veneer (Liquid Veneer Corp., Buffalo, N.Y.). 49¢ for 1 pt. can (30.5¢). Water-resistant. Available nationally.

PASTE WAX

EXCELLENT

Ad-el-ite (Adams & Elting Co., Chicago). \$1.55 for 4 lb. can (10.5¢). Available nationally.
Co-op (Consumers Cooperative Ass'n., North Kansas City, Mo.). 39¢ for 1 lb. can (14¢). Available in Midwest.

GOOD

White Sail (A & P). 29¢ for 1 lb. can (9¢). Available nationally at A & P stores.
Wards Cat. No.—86-531 (Montgomery Ward) 25¢ plus postage for ½ lb. can (13.5¢ plus postage). Available by mail order.
Devoe (Devoe & Reynolds Co.). 55¢ for 1 lb. can (14¢). Available nationally.
Johnson's (S. C. Johnson & Son, Inc.). 59¢ for 1 lb. jar (17¢). Available nationally.
Tavern (Socony-Vacuum Oil Co., Inc.). 69¢ for 1 lb. jar (17¢). Available nationally.
May'd Best (May Dept. Stores Co., St. Louis). 49¢ for 1 lb. can (17.5¢). Available at May Stores in Akron, Baltimore, Cleveland, Denver, Los Angeles and St. Louis.
Old English (A. S. Boyle Co.). 59¢ for 1 lb. can (21.5¢). Available nationally.

FAIR

CD Cat. No.—M5521 (Cooperative Distributors). 39¢ plus postage for 1 lb. can (10¢ plus postage). Available in NYC and by mail order.
Macy's (R. H. Macy & Co.). 44¢ for 1 lb. can (11.5¢). Available at Macy's Dept. Store, NYC.
Wilbert's (Wilbert Products Co., Inc.). 29¢ for ½ lb. can (12.5¢). Available nationally.
Liquid Veneer (Liquid Veneer Corp.). 37¢ for ½ lb. can (14¢). Available nationally.
Butcher's (Butcher Polish Co.). 75¢ for 1 lb. jar (17¢). Available in North East and North Central States.

POOR

Dan-Dee (Twin City Shellac Co., Inc.). 29¢ for 1 lb. jar (6¢). Available in large Eastern cities and in department stores in Western States.
Aimcee (A.M.C.). 85¢ for 2 lb. can (9¢). This can purchased in Los Angeles identically marked as the one listed below at 79¢ but contained more solid content. Available in AMC Stores.¹
Collins (D. A. Collins Mfg. Co., Inc.). 25¢ for ½ lb. can (9¢). Available on East Coast and New England.
Aimcee (A.M.C.). 79¢ for 2 lb. can (10¢). Purchased in New York. Same as brand listed above but contained less solid content. Available in AMC Stores.¹

¹ For list of AMC stores see page 33.

Maid of Honor Cat. No.—6572 (Sears-Roebuck). 45¢ plus postage for 1 lb. jar. (11.5¢ plus postage). Available by mail order.
Sollo (Kaufmann's). 49¢ for 1 lb. can (11.5¢). Available at Kaufmann's Dept. Store, Pittsburgh.
Aero (Midway Chemical Co.). 25¢ for 12 oz. jar (11.5¢). Available nationally.

LIQUID WAX

GOOD

Grants (W. T. Grant Co.). 20¢ for 1 pt. bottle (16¢). Available nationally in Grant Stores.
Aero (Midway Chemical Co.). 25¢ for 1 pt. bottle (18.5¢). Available nationally.
CD Cat. No.—M5531 (Cooperative Distributors). 40¢ plus postage for 1 pt. can (23.5¢ plus postage). Available in NYC and by mail order.
Old English (A. S. Boyle Co.). 89¢ for 1 qt. bottle (37.5¢). Available nationally.
Butcher's (Butcher Polish Co.). \$1.19 for 1 qt. can (40.5¢). Available in Northeast and North Central States.
Supre-Macy (R. H. Macy & Co.). \$1.98 for ½ gal. can (40.5¢). Available at Macy's Dept. Store, NYC.

FAIR

Collins (D. A. Collins Mfg. Co.). 25¢ for 1 pt. jar (13¢). Available on East Coast and New England States.
Maid of Honor—Cat. No.—6573 (Sears-Roebuck). 57¢ plus postage for 1 qt. can (20¢ plus postage). Available by mail order.
Johnson's (S. C. Johnson & Son, Inc.). 45¢ for 1 pt. bottle (34¢). Available nationally.
Tavern (Socony-Vacuum Oil Co.). 89¢ for 1 qt. bottle (34¢). Available nationally.
Macy's (R. H. Macy & Co.). 74¢ for 1 qt. can (36.5¢). Available at Macy's Dept. Store, NYC.
Preen (Minwax Co., Inc., NYC). 65¢ for 1 pt. bottle (48¢). Available in Conn., R. I., Md., Penna., N. J. and N. Y.

NOT ACCEPTABLE

Wards Liquid Wax (Montgomery Ward) Cat. No.—86-537. 42¢ plus postage for 1 qt. can (14¢ plus postage). Not water-resistant. Flammability point too low for safety.

Correction

As the result of a typographical error, the price of the *Wise New Modern Encyclopedia* was erroneously listed in the November 1943 Reports as costing \$1.95 instead of the actual price, \$3.95.

Protective Creams

... developed in response to demands of women factory workers, have made a hit with men workers too. Here are some notes on what a good cream should do, and ratings of some of those on the market.

Rosie may be riveting or burring these days—and working as hard as she can for victory—but she's still the same old Rosie when evening comes. When she puts on her best bib and tucker, she doesn't want to set them off with riveters' hands or a grease-monkey complexion. And the millions of women in industry who agree with her have focused attention on the special beauty problem of the war plant worker.

Many women workers are using materials and chemicals which are hard on the hands; others work in an atmosphere charged with dust and bits of flying debris; still others work with machine grease which can splatter on the face and cause sensitive skin to become inflamed or break out in a rash.

Such "factory dermatitis" is an old story to men workers, but it remained for the women to start coating hands and faces with special protective creams to minimize the unpleasant consequences of their work. And it's being whispered around that even seasoned mechanics, laborers and assembly workers, who had come to accept imbedded grime, harsh cleaners and rough hands as part of the job, are taking a cue from their feminine co-workers.

"Hand creams" is the generic term used to cover these protective substances, but they come in various forms including thick lotions, gums and petrolatum jellies, and they can be used for face and arm protection, too. There are two main types: creams for general use, and "barrier" creams, developed for special types of work involving particular irritants.

Protective creams for general use are, in the main, emulsions similar to vanishing creams, but they contain in addition inert powders (such as talc, zinc stearate, magnesium stearate, etc.). By covering the skin, they

prevent much of the grease and grime from becoming imbedded there. Thus, the dirt can be washed off, along with the cream, with ordinary soap and water. This type of cream is particularly useful if the work being done is not too dirty, too greasy or too wet, and if it does not require too much hand and finger manipulation. Even with these conditions, however, use of general protective creams has value, since at least some of the grime is kept from becoming imbedded in the hands, and washing is made that much easier. They are especially valuable when applied to the face, neck and upper arms, which often get very dirty but can't stand the same harsh cleansing as the hands.

Barrier creams are for protection against particular irritants in special types of work. They are more complex than the general creams, and much research has been needed to find substances to neutralize the irritating substances and to incorporate them into media (cream, lotion, gum, etc.) that can be effectively applied. One of the complications is to find protective substances which are not themselves irritating to the skin.

Barrier creams have not yet been developed against all types of irritants. But much research is under way, and it is hoped that cheap and effective products will soon be developed in new fields.

Both types of protective creams should have these properties:

- Leave fingers free to move;
- Be practically invisible;
- Be easy to apply;
- Be easy to remove.

CU's tests covered only general-purpose creams, since the others are not generally available, but were developed for and are supplied only to workers in special fields. Of the creams tested, all were generally ac-

ceptable and were found to conform to the requirements listed above.

To make sure that the creams were not irritating, measurements of pH number (a technical expression indicating the acidity or alkalinity of the product) were made.

Little research has been done on the possible effect of changes in pH on the normal skin, but authorities seem to agree that creams left in contact with the skin for long periods of time should be as nearly neutral (pH 7—neither acid nor alkaline) as possible. In the absence of more conclusive data, therefore, CU recommends that purchasers favor those brands which are as nearly neutral in chemical reaction as possible (pH's above 7 are alkaline; those below 7 are acid).

ACCEPTABLE

In order of increasing cost per dry ounce of protective cream, which is given in parentheses. Prices given are without the 10% Federal tax on cosmetics; some, though not all of the creams were sold as cosmetics, and therefore subject to the tax.

Ply (Milburn Co., Detroit). 25¢ for 12-oz. jar (11.4¢). pH 10.4.

Gre-Solvent Cream (Utility Co., NYC). 25¢ for 8 fl. oz. (12.5¢). pH 10.9.

Magic Glove (Freeport Chemical Corp., Boston). 79¢ per pint (15.2¢). pH 11.1.

Macy's (R. H. Macy & Co., NYC). 49¢ for 13¼ oz. jar (16.8¢). pH 9.9.

Mitts (Mitts Mfg. Co., NYC). 25¢ for 8 fl. oz. (17.3¢). pH 10.7.

Handy (Handy Sales Mfg. Co., Cleveland). 35¢ for 8 fl. oz. (22.9¢). pH 9.8.

Hand-Saver (Vanguard Sales Corp., NYC). 79¢ for 15 fl. oz. (23.5¢). pH 10.5.

Creamy Glove (Lehn & Fink Prod. Corp., Bloomfield, N. J.). 49¢ for 8-oz. jar (24.1¢). pH 8.0.

Pro-Tek (E. I. Du Pont de Nemours & Co., Wilmington, Del.). 29¢ for 8 fl. oz. (28.1¢). pH 10.9.

Camcox Crème Glove (Cameron & Cox Merchandise Mart, Chicago). 35¢ for 8 fl. oz. (31.5¢). pH 9.7.

Neo-Film (Jones Medical Laboratories, Inc., Cleveland). \$1 for 8 fl. oz. (33.8¢). pH 7.8.

Hand-Saver (Vanguard Sales Corp.). 79¢ for 16 fl. oz. (37.6¢). pH 10.7. Appeared different from 15-oz. *Hand-Saver*, above; lumpy, and formed less solid film.

Breck pH 7 Protective Cream (John H. Breck, Inc., Springfield, Mass.). 75¢ for 7½ oz. jar (38.7¢). pH 8.2.

Apple Blossom Colloidal Hand-Guard (Helena Rubinstein, NYC). 50¢ for 3¼ oz. tube (71.4¢). pH 9.7.

OILCLOTH

... has many uses in the home. It may help you with some of your wartime laundry problems.

Though it has neither the good appearance nor the resistance to folding of other coated fabrics which are war casualties, oilcloth has many advantages as an informal table covering. Most important is the ease of cleansing; a whisk with a soapy cloth, followed by one wrung out of clear water, and the cloth is fresh and ready for re-use—no laundry bills or washing and ironing. Furthermore, the easy cleanability means a fresh cloth for each meal—no need to use a not-quite-clean cloth “just once more.”

Oilcloth is waterproof, so that it forms an effective protection for table surfaces. And if junior upsets his glass of milk at mealtime, the mess can be mopped up without changing the tablecloth.

The initial cost of oilcloth is low (about 35¢ to 45¢ a yard for 49 to 54 inch width). Add this to the savings in laundry bills, and the cost per use becomes very low, even though replacement may be necessary from time to time.

In addition to its use as a meal-time table covering, oilcloth is also useful as a covering between meals if the table is also used as a work surface. Its smooth and easily cleaned surface makes it a good protection against such between-time occupations as mending, pasting, small repair jobs, table-games, metal polishing and writing.

HOW CU TESTED

CU purchased and tested from five to eight differently colored and designed oilcloth samples of each of the three main brands. In addition, three samples of unbranded oilcloth were compared with the branded ones. Tests for tensile strength were conducted to determine how much pull they could take. Samples were placed in an abrasion machine to see just how much rubbing each sample could withstand. Weight in ounces per square yard, as well as thread count of base material, was determined to evaluate the fabric used and the amount of coating on each sample. Cloths were creased in a special flexing machine to see how much they could be folded without damage; and finally each cloth was subjected to staining with 15 different materials commonly spilled on oilcloth during ordinary household use.

WHAT THE TESTS SHOW

All of the branded oilcloths showed comparable tensile strength, weight and thread count while the unbranded solid color cloths tested were lighter in weight and had a thinner coating. Mustard, ink, vinegar, alcohol and soap permanently stained almost all of the oilcloths tested; those not affected by these agents were of a particular color rather than a particular brand. No stains were left by

ketchup, butter, mayonnaise, jelly, egg, chocolate, oil, beet juice or plain water.

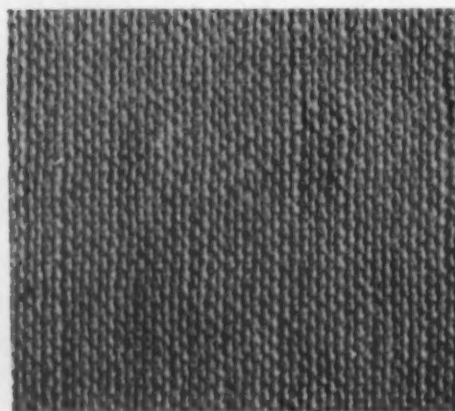
Differences in resistance to abrasion were found among the three brands comprising most of the oilcloth you'll find in the stores. The *Meritas* brand (usually having a checked design on the reverse) showed a consistently lower abrasion resistance than either the *Pine Tree* (which has a floral pattern on the reverse) or *Blenback* (solid-colored reverse) brands (see illustration). The *Pine Tree* brand had a higher abrasion resistance in its solid colors while its floral and other designs compared with the *Blenback* brand. The unbranded solid-color oilcloths showed poor resistance to abrasion while floral patterns compared favorably with similar branded patterns in this respect.

CU recommends: Choose the *Pine Tree* brand for solid colors; select a patterned cloth from either the *Pine Tree* or *Blenback* brands.

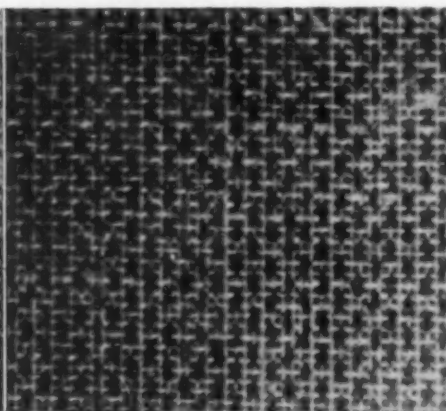
CARE OF OILCLOTH

To make oilcloth covering last longer:

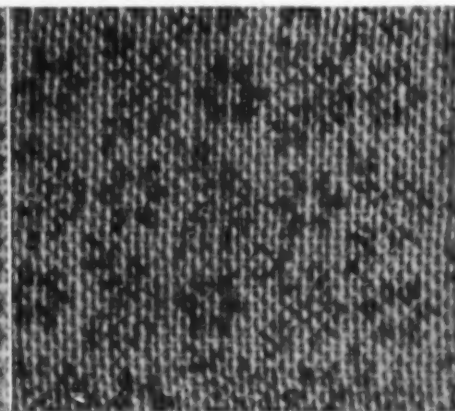
- Minimize folding, but if you must fold the cloth, don't crease while it is wet.
- Keep it away from extreme heat or direct sunlight.
- Remove food or other stains as soon as possible. Wash with lukewarm water using very little soap.
- *Never* use harsh cleansers such as scouring powders or stiff brushes.
- Avoid spilling alcohol, nail polish, or nail polish remover on it.
- Don't place hot objects such as heated pots, toasters, broilers or other electrical appliances on it.



Blenback



Meritas



Pine Tree

CAMERAS: Care & Repair

Cameras and accessories are almost as rare as the proverbial hen's teeth on the shelves of photographic dealers, and it is unlikely that any quantity will be available for the duration, and perhaps for some time thereafter. Consequently, many dealers are satisfying customers' demands with old cameras, which would have been junked in normal times. Slightly refurbished and patched, these are being sold at prices which range from high to fantastic.

CU's advice is to avoid buying any cameras or accessories unless they are absolutely indispensable. If you must buy equipment now, you're likely to get very old models, which will become almost valueless as new and improved models make their appearance after the war. But if, despite this, you must buy, make sure that you get a written guarantee covering imperfections in the mechanism. And try not to buy without a ten-day trial period with full return privilege if the equipment proves unsatisfactory.

If you already own a camera, enlarger, projector or useful photographic gadget, you will do well to take good care of it. This is neither complex nor difficult if certain fundamentals are kept in mind and a few simple instructions are faithfully carried out.

First, the camera. If there is a bellows and a removable back, remove the back and, using a good light to illuminate the interior, brush out all lint and dust adhering to it. If the camera is large, this can be done rapidly and effectively with a small nozzle of your vacuum cleaner. The same applies to enlarger bellows.

The inside of a small camera without bellows can be readily cleaned with a camel's hair brush. The interior of a *Leica* and similar cameras is best cleaned with the blower attachment of a vacuum cleaner.

The life of leather bellows will be prolonged if the external surface is treated with saddle soap or neat's foot oil. If a bellows-camera which has a removable back is old, examine the bellows for pinholes by placing a lighted electric bulb or flash-light inside the camera in a darkened room or closet. By this method pin-

holes, if present, are readily found. If bellows are not too far gone, they can be mended by a competent camera repairman. Or you can do an effective, temporary job with black scotch tape applied on the inside over the pinhole.

Tighten all screws on the camera bed or wherever they are readily accessible.

The polished surface of the ground glass panel should be carefully cleaned, and a small quantity of vaseline should be rubbed on the ground or etched surface, and then wiped off, for greater clarity.

Adjustments on the range finder, other than those recommended for the user by the manufacturer, should be made only by a qualified repairman. Taking a range finder apart is not recommended.

If the American tripod bushing tends to loosen or fall out of its socket in a camera of German make, place a drop of household cement on the thread, insert the bushing, and allow to dry. With ordinary use, the bushing will remain in place permanently.

Oil the slide or movie projector regularly in the places and with the oil recommended by the manufacturers of the apparatus.

To keep a lens clean, a camel's hair brush and the softest lens tissue obtainable are essential. Keep lens tissue in an envelope so that it won't get dirty. Do not polish the lens surfaces needlessly. Do not take a non-convertible lens apart unnecessarily.

Never take the lens shutter apart. Never put oil of any kind inside a shutter. If your *Graflex* or *Speed Graphic* remains unused over a long period, set each shutter winding knob or lever to its highest tension, then release the tension from each of the springs completely. Do this once or twice a month if the camera is not in use. The *Miroflex*, *Contax*, *Leica*, and similar shutters should be put through their paces periodically. When you are finished with any group of pictures, release the shutter tension before putting the camera away.

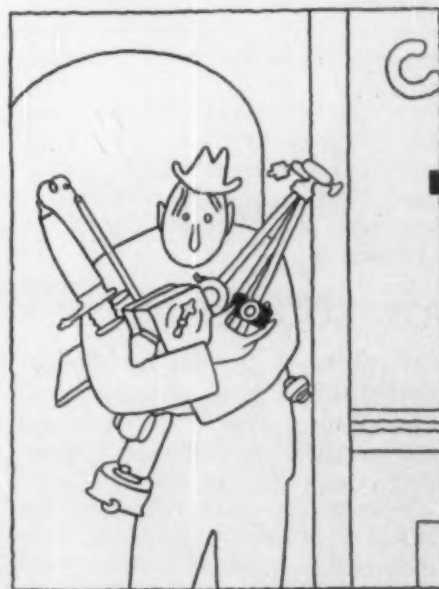
Since serious damage can result if lenses are dropped, place lenses carefully in a safe place. Keep them well away from sources of high temperature, such as steam radiators or fire-

places. Make sure that your enlarger lamp is turned off when not in use; besides wasting electricity and burning out the lamp, the heat generated may damage the lens.

Keep a lens cap over the front surface of the lens in the camera or enlarger, whenever possible. If a lens is kept outside the camera or enlarger, cap both the lens surfaces. The condensers and the diffusing glasses of the enlarger, readily forgotten, should be cleaned regularly. Take extreme care to keep sand out of the camera.

Check the flash synchronizer frequently at home by any one of the easy methods described in the photographic journals and books on the subject. Dealers equipped for the purpose usually check and adjust the timing of the tripper without charge. Do not leave batteries in flash guns when not in use, as they may be difficult to remove after they run down.

Any camera or projector repairs other than the most obvious and simple are best made by a competent and dependable repairman, unless you are skilled with tools and experienced in the often delicate and precise repair and testing operations. Some manufacturing concerns, such as the Eastman Kodak Company and the Folmer Graflex Corporation, offer excellent repair services to owners of cameras and other apparatus manufactured by them. Those availing themselves of such services must be prepared to allow a rather longer time than usual for the repairs, owing to war conditions.



The good old days:
From the Reports July, 1937.

"Fuel Stretchers"

With both coal and fuel-oil scarce, this Winter has seen the market flooded with "fuel-stretching" products. To help members for the rest of this season and in their plans for next Winter, CU asked its heating consultants to survey the experience of householders with these products in the past few months, and to make recommendations on the basis of this survey. Their recommendations follow.

With fuel oil stiffly rationed and coal harder and harder to get, thousands of chilly and desperate householders are dosing their heating plants with salts and medicines in efforts to jack room temperatures to a drafty and uncomfortable 60°. Others are buying \$2 to \$35 mechanical devices "guaranteed to generate 10% to 40% more heat from the fuel burned."

Many salesmen, oil burner distributors, and department stores have taken the fuel shortage as an invitation to dream up trade names for so-called "Soot Eliminators," "Fuel Oil Improvers," or "Boiler Water Compounds," and to sell them at exorbitant prices. Low-priced ingredients for these can be mixed, packaged and labeled in a corner of a two-car garage; or they can be bought already fitted with labels and instructions, from some suppliers. Mechanical devices to "save" fuel are almost as easy to invent and have manufactured.

The list of alleged fuel stretchers, now hundreds of trade names long, grows longer each month. It is composed mostly of chemical mixtures along with several types of mechanical devices.

FOR YOUR OIL BURNER

If you burn oil, consider yourself slighted if you have not been urged to buy three or four newly developed fuel-stretching products, each absolutely guaranteed to fetch 10% to 40% more heat from each gallon of your precious allotment. To be typical, a fuel-saver advertisement must contain an "absolute guarantee" together with a pseudo-scientific ex-

... are not always all they claim. Sometimes they are a menace to the heating plant and the safety of the household; sometimes they just don't do the job. Here are some facts on various types.

planation that seems utterly convincing to a defenseless layman. The "guarantee" is safe, from the seller's point of view, as even the most punctilious home manager cannot ascertain how much "additional heat" is obtained from a given oil ration. (Even experts have difficulty checking on how weather conditions affect fuel consumption. Questions arise about which rooms were heated how much during what hours, and about a dozen additional variables that affect heating requirements.) Then, too, there is the expense and time-taking trouble a typical consumer would be put to if he tried to prove he was victim of a fraud. Well versed in these matters, men who offer "fuel-savers" flaunt the "absolute guarantee" as their ace card.

Your best bet, if you have doubts about the efficiency of your oil heating plant, is to try to obtain the services of a genuinely good oil heating or combustion engineer. Your oil supplier may be able to supply such service without charge. That failing, you may have to pay about \$15 for a checkup; the company that installed your burner can probably recommend a reliable person for the job.

The plant should be tested with combustion instruments which indicate sources of oil waste. Watch the expert test your plant. Obtain his recommendations in full, preferably in writing. Ask him to re-check the burner after the correctives he prescribes have been applied. All this costs money, but there is no royal and inexpensive road to evaluating the efficiency of a heating plant and correcting defects that waste oil.

Where a specific defect sends 50% of the heat in the oil up the chimney, obviously it is futile to spend money on a gadget which does not relate to the defect. Remember that as you consider these products now offered

to give you more heat from the oil you burn:

FUEL OIL "IMPROVERS"

Liquid or solid material to be put in your oil tank to "improve combustion," "enrich the oil," "decrease the viscosity of the oil," "make tank clean-outs unnecessary," "clean the oil tank, strainers, and nozzle," etc.

In attempting to produce an elixir for domestic fuel oil, the producers turn to inexpensive ingredients such as fuel oil itself, benzine, and kerosene, and generally add to this from a trace to an appreciable percentage of some solvent such as ethyl acetate or carbon tetrachloride. Crude naphthalene is also used.

In the opinion of CU's consultants, no additive should be used in the fuel oil, inasmuch as the burners can be made to operate on untreated fuel oils at top efficiency. The major oil companies do not use additives in the oil burners they own and operate; this includes heavy-oil installations which give much more trouble than do domestic light-oil installations with regard to gum, sediment, and sludge.

Numerous field tests of "fuel oil improvers" by CU consultants on domestic oil burner installations, both pressure-atomizing and wall flame rotary types, brought these conclusions:

1. The fuel oil available today for house-heating needs no additive. Moreover, no additive known to the oil heating industry, the petroleum industry, or the chemical industry makes the oil more suitable for oil burners. No additive makes for quicker lighting, smoother starting, higher efficiencies, or for more heat from a gallon of fuel.

2. For a burner that is inefficient because of a specific shortcoming, there is no fuel oil "improver" that will improve the efficiency. The inef-

ficient burners tested were as inefficient with additives used in the fuel oil as they were without the "benefits" of the additives.

3. The efficiencies of healthy, good oil burners could not be increased by the use of additives.

CU recommends that oil burner owners do not waste money on additives in attempts to improve the fuel oil. While in the main it is probable that no harm will be done by using the impotent doses of the innocuous additives usually prescribed by the manufacturers, there is a risk of obtaining an unknown "magic in the can" which may damage the oil tank or the oil burner equipment.

Do not regard any fuel oil additive as a cure-all. If your oil tank contains water, sludge, and sediment (few do), have the tank cleaned out and try to obtain good fuel oil from then on. If your oil burner strainers are dirty, have them cleaned. If the nozzle is dirty, have it cleaned. Additional strainers or filters should be installed on burners that plug nozzles frequently when supplied with fuel oil not usually dirty.

"SOOT REMOVERS"

These are sold for application to the oil flame or the firebox, to clean the flues and make for more efficient absorption of heat from the flame.

The common ingredients for this type of "soot eliminator" are sodium chloride (ordinary table salt), sulfur, powdered zinc, manganese dioxide, potassium chlorate, sodium chlorate, and potassium nitrate (saltpeter).

There seem to be two "principles" used in the manufacture of this type of product. One is to provide an agent that will cause heat from the oil flame to ignite soot in the flues that otherwise would not ignite because of the low temperatures where the soot is located. Second is to "blow out" the accumulated soot, with the violence of fireworks or gunpowder.

Laboratory and field tests show that such powders do not clean boiler and furnace flues safely and properly. Some of these products did cause part of the soot to burn on the hottest surfaces (as at locations G and C in the accompanying illustration of an oil-fired boiler), but at best there is much soot, not to mention boiler rust and scale, which are not affected by such chemicals, left in the flues.

Certain boilers connected to hot water heating plants, and warm air furnaces fitted with forced circula-

tion air blowers showed no perceptible benefit from the efforts to clean them using powders; chemicals could not cause the soot to burn on the cool flue surfaces. On the other hand, sparks flew from the chimneys and sometimes chimney fires were started when efforts were made to clean some heavily sooted furnaces with the help of the powders. It is especially unwise to employ soot-burning powders on installations where the smokepipes and chimneys as well as the boilers or furnaces contain considerable soot. You may set fire to your own house or your neighbor's, with sparks and "soot comets" that blow out of the chimney.

There is another danger if the draft is poor. The person applying the soot powder may be burned, or the basement may be set on fire by sparks and flames from open firing doors and from cracks in the boiler or furnace. Even, however, where combustion was dangerously intense, the boilers were not cleaned thoroughly; for thorough cleaning, a flue brush had to be used to remove the

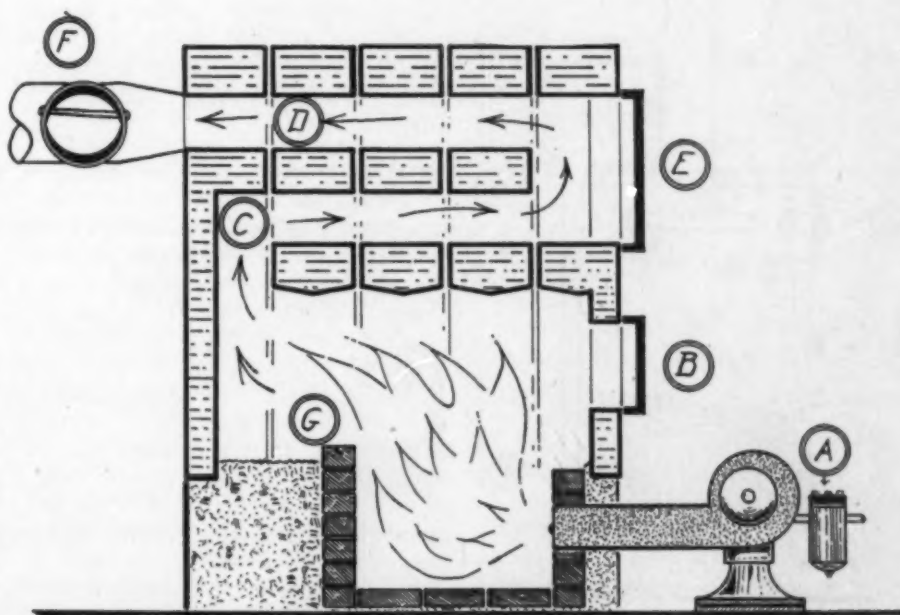
soot and scale that had been unaffected by the powders.

In some boilers they leave 90% of the soot and scale. Some powders leave a white coat over the soot and scale that remains, and a novice inspecting the flues thinks they are clean—until he touches a finger to the beautiful white coat and discovers that under it is the old layer of scale and soot. Many burner owners were actually wasting oil because of their faith in the soot-burning powders when a real job of flue cleaning was needed badly.

CU recommends that owners of oil-fired boilers and furnaces apply the flue brush (or if they don't care for this job, have the cleaning done by a professional who uses a flue brush, or better still a flue brush aided by a special vacuum cleaner) when flues need cleaning.

COMPOUNDS TO IMPROVE BOILER WATER

These are sold to "improve" boiler water so that the boiler and the radiators will heat faster; to "lengthen



THE OIL-FIRED BOILER

Chemicals will not stretch fuel oil. To clean soot from the direct and indirect heating surfaces (at C, D and G), open doors E and B and apply the flue brush. Do this as thoroughly and as frequently as necessary. An additional oil strainer (A) should be applied to a burner which clogs its nozzle frequently on oil which is not especially dirty. Additives to the fuel oil are no cure for plugged strainers and nozzles, water sediment in oil tanks, or common defects that cause oil to be wasted. Your burner deserves a good smoke-pipe draft regulator (F), but don't expect to get 30% more heat from the oil by spending \$25 on a trick draft control.

the life" of heating plants; and to "stretch oil rations." The compound is poured into the boiler, either in one treatment or periodically throughout the season.

These compounds may contain any of a wide variety of chemicals or commonly available substances including, for example, water glass, trisodium phosphate, crude oil, kerosene, soda, tannin, vegetable ingredients, or milk of lime.

Heating boilers, especially steam boilers, should be cleaned thoroughly of oil, grease, and sludge by the contractor when he first installs the plant. After a boiler has been in use about five years and the water in it is no longer clean and capable of boiling easily and without bubbling (the boiler may be said to "prime" or "foam"), it may be advisable to drain it and to apply proper cleaning chemicals.

Much depends on the type of boiler (steel boilers generally need better care than cast-iron boilers), on the nature of the water used in the boiler, and on how much fresh water is

added to the boiler during a heating season (the less the boiler needs, the better for the boiler). This entire matter is very complicated for the typical householder; he should try to get advice and recommendations from the boiler manufacturer.

CU recommends that the owner of a boiler avoid taking chances of pouring "cure-all" boiler compounds into his boiler. There is no compound that fits every requirement. Don't dose your boiler with needless "tonics"; you may cause serious damage. Ordinarily if city water is used in a small cast-iron steam heating boiler, it may be well to drain the water completely from the boiler every year or two, fill up with fresh water and then drain again, and if the water that is removed still appears badly discolored, repeat this two or three times for complete washout and rinsing. Do all this with the boiler cold—no fire in it.

Ordinarily, a cast-iron boiler connected to a hot water heating plant should be drained every year or two at most. If you have a steel boiler or if you face special problems, consult the most reliable local heating contractor or consulting engineer you can find. In addition, send a sample of fresh tap water, and a sample of water from your boiler, to the manufacturer of the boiler and ask for advice.

SMOKEPIPE DRAFT REGULATORS

Needed for most oil burner installations to govern the chimney draft, smokepipe draft regulators are often the subjects of high pressure sales tactics. Probably your oil burner will operate most efficiently with a good, properly adjusted draft regulator. But even if it lacks a draft regulator or is fitted with an inferior, wornout or defective draft regulator, it is unlikely that your oil can be stretched as much as the "20% to 35% further" that some sales artists claim in connection with their products.

CU recommends that your decision to buy a new draft regulator be based on the results of complete combustion tests; don't accept the word of a dealer who tells you a new regulator is needed without tests to back up his argument. If tests show you need a new draft control, buy simple but durable equipment of the type the manufacturer of your oil burner recommends. Do not pay more than about \$10 as the installed price of a draft regulator for a small heating plant.

NEW FIREBOX OR COMBUSTION CHAMBER

Oil burner fireboxes selling for as much as \$60 have also become innocent victims of flim-flam sales setups.

Check-ups by CU consultants show that hundreds of "special" new fireboxes of poor design and material are being sold in some cities.

CU recommends that you buy a new combustion chamber *only* on the basis of combustion tests. Have the man who offers the new firebox make the tests; watch him make them. Should he prove unable to comply with your request and make proper tests (of carbon dioxide, draft, and stack temperature), pass him by as incapable of designing and installing a firebox that is genuinely capable of high efficiencies. If he makes the tests, obtain from him a written report on his findings, together with a forecast regarding the improvement, in actual numerical terms, that may be expected as a result of buying the recommended new firebox.

Be wary about buying a new firebox but do not blandly assume your five-year-old burner does not need one, for a skillfully engineered firebox of good material, together with other improvements which a conscientious specialist can provide with it, may be able to give you ten degrees higher house temperature than you had before, with the same amount of oil or the same temperature with less oil.

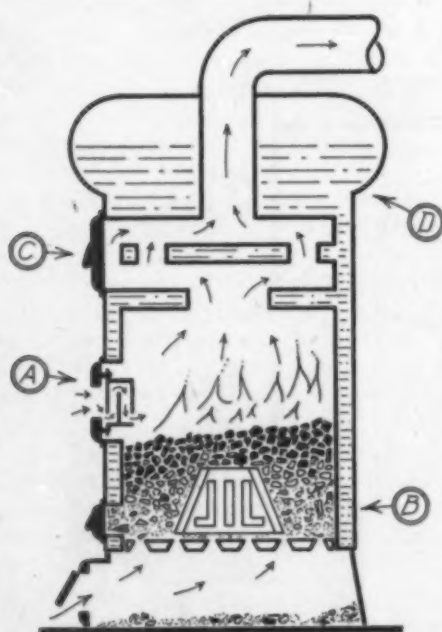
FOR YOUR COAL-FIRED PLANT

The big thing needed in homes affected by the coal shortage is someone to keep the heating plant in good order and tend the coal fire properly. In many homes one-third of the coal burned represents sheer waste of heat because of such factors as these:

New grate bar is needed; every time someone shakes the grates "half" the fire drops into the ashpit.

Dampers are inadequate and fire cannot be banked or adjusted for anything but high-rate burning; every shovelful of coal added to the fire burns right up unless the firing door is kept open.

Heating boiler and steam mains lack insulation; heat from some two tons of coal a year is wasted in the basement of a typical six-room house.



THE COAL-FIRED BURNER

High on the list of what your coal-firing plant does not need is a "firing door carburetor" (A) and "auxiliary grate" (B). Flue door (C) should be opened often to clean out ashes, scale and soot from the flues. The boiler water (D) needs no steady tonic; where there are boiler-water problems, they should be solved by experts. They cannot be ended by dosing the boiler with a "cure-all."

Stove has no smokepipe damper.

Air leaks between the sections of the boiler; standing next to the boiler, you can see the fire.

The person who tends the furnace just shovels on coal when the house seems chilly.

Although not as readily available as it has been in normal times, there is still help available for the householder who wants to make sure his heating plant has no fuel-wasting defects, and who aims to learn how to tend a coal fire. (See the *Reports*, August 1941 for instructions.) Persistent appeals for help from local heating contractors and from the supplier of the coal will fetch some kind of assistance for most coal users, even today.

In the way of improvements, your coal heating plant may need a room thermostat arrangement which will steady the room temperatures and eliminate waste of coal resulting from overheating. It does this by setting the dampers for fast burning only when the rooms are cooler than they should be, and banking the fire the rest of the time. Though higher priced than it was a few years ago, equipment of this type is still available in limited quantity.

What your coal heating plant does not need is chemical "fuel stretchers" and gadgets.

SALT OR POWDER TO REMOVE SOOT

The recommendation to avoid "soot destroyers" for oil-fired equip-

ment applies even more strongly to coal-fired equipment. As far as anthracite (hard coal) goes, little or no soot is deposited in the flues, consequently there is no excuse to apply soot removing powder to eliminate it. Fly ash and scale must be removed from the flues of the boiler or furnace, perhaps as often as twice a month during severely cold weather. Generally the most practical arrangement is for the home fireman to use a wire flue brush, supplied with most furnaces or boilers, to do a thorough job of cleaning the flues.

With bituminous (soft coal), soot in the flues frequently is a problem. But there is even less chance of solving it with chemical soot burner than there is of cleaning an oil furnace with chemicals. The flues of the coal furnace generally are considerably cooler than the flues of an oil-fired furnace, therefore the soot burning powder is relatively ineffective. In addition, scale and ash must be removed from the flues. Neither is affected by soot burning powders.

COMPOUNDS TO IMPROVE BOILER WATER

With respect to boiler water problems, there is no difference between oil-fired and coal-fired boilers. What has been said in this report regarding boiler water compounds for oil-fired equipment holds as well for coal-fired boilers.

CARBURETORS FOR FIRING DOORS OF COAL PLANTS

Tricky devices to be applied to the firing doors of coal boilers were invented during the last war, and sold to thousands of unsuspecting coal users. They were found equally useless for anthracite and bituminous coal plants, but they are now being "rediscovered" and featured as "smoke consumers," "overfire gas burners," and "economizers."

Combustion tests of typical house heating plants show that generally there is an excess of oxygen over the coal fire in a furnace or boiler. To admit additional air through the fire door may actually increase the coal consumption, or fetch less heat from the coal burned.

As anthracite gives off no smoke, the firing door gadgets cannot be sold as "smoke consumers" to users of hard coal. In tests of plants fired by bituminous coal, CU technicians found that smoke was caused com-

monly not by the lack of oxygen over the fire but by low over-fire temperatures, especially with the fires burning at anything but their maximum rates, which did not lead to complete combustion of the released gases. It is practically impossible to fire certain bituminous coals in typical domestic boilers without producing excessive smoke. For the bituminous coal user who desires to obtain the high efficiencies that come with nearly complete combustion and no smoke, the answer lies in installing a good stoker. No gadget for the firing door is a substitute for this.

SPECIAL ARRANGEMENTS TO PLACE ON GRATES

The accompanying drawing shows a box-like cast-iron arrangement which home owners are urged to buy to "obtain higher efficiencies," "obtain the benefits of increased grate area," and in general to obtain more satisfactory combustion and more heat from the coal used. Worse than worthless, this interferes with proper firing of the coal, causes the fire to burn through in the center and go dead at the front, back and sides, and interferes with proper shaking of the grates and cleaning of the fire. Of all gadgets being marketed currently, this heads the list of "What a Coal User Should Do Without."

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17 UNION SQUARE W., N. Y. C., 3.

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- ☐ Enter my subscription for the Reports and Buying Guide and Bread & Butter for one year.
- ☐ Renew my subscription for one year and send me Bread & Butter to run concurrently with the Reports.

I ENCLOSE \$3.50 FOR WHICH PLEASE

- ☐ Enter my subscription for the Reports and Buying Guide for one year.
- ☐ Renew my subscription for one year.

I AGREE TO KEEP CONFIDENTIAL ALL MATERIAL SO DESIGNATED

NAME.....

ADDRESS.....

2CU

Watch for...

Work on the following reports, among others, is either now under way or scheduled to begin soon:

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Work Shirts

Work Pants

Aluminum Cleansers

Silver Polish

Noodles and Spaghetti

Wax Paper

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CU's Medical Consultants give technical advice on matters of medicine which lie within their fields. CU is responsible for all opinions concerning social, economic and public health questions.

DEALERS in DEATH

The following article¹ is reprinted in its entirety from the December 24, 1943 issue of *Science*.

Dr. Yandell Henderson, the author, received his Ph. D. from Yale University in 1898. He returned to Yale in 1900 as instructor of physiology at the medical school and was made assistant professor in 1903 and professor in 1920. Since that time he has devoted himself to scientific research.

He was a member of the committee on resuscitation from electric shock for the National Electric Light Association and on resuscitation from mine gases for the U. S. Bureau of Mines in 1911-12. When the United States entered the World War, he was called upon to aid in the development of chemical warfare and served as chief of the medical section of the U. S. war gas investigations conducted by the Bureau of Mines; this developed into the research department of the chemical warfare service. Professor Henderson developed improvements in the gas masks used by the Allied armies in France and himself wore the first American-made mask into the gassing chamber. The first 10,000 masks made for the A.E.F. were produced under his supervision. He also supervised the development of methods of treatment for soldiers who were gassed.

With Dr. Howard Wolcox Haggard, he devised the standard of ventilation for the Holland Tunnel under the Hudson River. This standard, which involved the predetermination of the amount of air required to dilute carbon monoxide and other impurities to the point of safety, has been adopted all over the world. Development of this standard led to a study of carbon monoxide asphyxia, with the result that Dr. Henderson and Dr. Haggard, after many experiments, developed a method of treatment that has been adopted all over the world.

In no field of scientific activity during the past half century have the advances been greater than in that concerned with the saving of human lives. Yet along with some of these advances there have been very considerable amounts of charlatanry; quackery and their inevitable consequence—increase of mortality. Fortunately what was false and harmful

has generally been, after a time, exposed and rejected; but not always or soon. And now a particularly evil affair has developed: that of a device that thirty years ago was introduced as a life-saver, but that was shown to be rather a life-loser, and was therefore rejected; yet that now is again being exploited under another name with all the force of high-powered salesmanship and pseudo-science to the inevitable loss of many lives that could be, and should be, saved.

The device to which I refer is a breathing machine that at first was called a "pulmotor" and that now, slightly changed in form but identical in essentials, is being reintroduced under another name as a "resuscitator." By alternately sucking and

blowing, these "pulmotor-resuscitators" were designed, and have been claimed, to remove poisonous gases from the lungs and blood and to induce a return of breathing in cases of partial drowning, electric shock and gas asphyxiation. For this claim, no valid scientific evidence has ever been offered. The sole supporting argument for such suck and blow devices is a demonstration that, when one of them is attached to a rubber bag, the bag can be alternately inflated and deflated; and—more dramatically—that when an inflated rubber doll is substituted for the bag, the doll can be made to "breathe" realistically. On this basis, the claim is that, if the human lungs were similarly subjected to alternating positive and negative pressures, they would be similarly ventilated. Yet in reality they are not, unless the positive and negative pressures employed are so large as to induce mechanical injury, dangerous degrees of acapnia [diminished carbon dioxide in the blood] and failure of the circulation.

It is true that a healthy conscious man can voluntarily adjust his breathing to the rhythm of such apparatus, so that he appears to behave like the rubber doll. But if the patient is unconscious and the pressures applied, both positive and negative, are low enough to be harmless, there is generally either complete discordance between the patient's breathing and the rhythm of the apparatus; or else the well-known vagal reflexes from the lungs—which are lacking in a rubber doll—cause the diaphragm to resist the artificial respiration by contrary respiratory movements.

The inventors of the pulmotor assumed, and the promoters of "resuscitators" still claim, that by artificially forcing the lungs and chest through movements like those of breathing, a return of natural respiration should be induced. But, on the contrary, the far-reaching advances made during the past four decades in our knowledge of the physiological control and regulation of respiration have established the facts that the restoration and maintenance of respiration are principally dependent, not on the reciprocating reflexes of inspiration and expiration but on the chemical stimulation of the respiratory center in the brain by the blood gases—particularly carbon dioxide, along with an adequate amount of oxygen. The argument for pulmotors and "resuscitators" implied by the rubber doll is that, just as a

¹ For the evidence, experimental and clinical, and full references to the literature upon which this article is based, see: Henderson and Haggard, "Noxious Gases and the Principles of Respiration Influencing Their Action," 2d edition, New York, 1943; Henderson and Turner, "Artificial Respiration and Inhalation," *Jour. Am. Med. Ass.*, 116: 1508, 1941; Henderson, "Adventures in Respiration; Modes of Asphyxiation and Methods of Resuscitation," Baltimore, 1938; and same author, "Tonus and the Venopressor Mechanism: The Clinical Physiology of a Major Mode of Death," *Medicine*, 22: 223, September, 1943.

stalled gasoline motor in an automobile or motor boat can be restarted by cranking, so by analogous means a drowned or asphyxiated man, or an apneic newborn baby, should be resuscitated; which is in direct conflict with all that is known scientifically about resuscitation.

My own experience with carbon monoxide asphyxia began in 1910 when I was called to see a man who had been overcome in his bedroom by city gas and was under treatment with a pulmotor. He was not very deeply asphyxiated; but he was entirely unconscious and was breathing stertorously. What was most noticeable was that the rhythm of the apparatus was entirely out of step with the patient's own respiration, which it was rather opposing and impeding than aiding. However, in that case, consciousness returned after a time, as occurs in mild cases without any treatment; and recovery followed. Now, after the experience of thirty-two years and hundreds of cases far more efficiently treated, I can report a recent similar victim, not treated by me, who also was still breathing while a "resuscitator" clicked rapidly and ineffectively from blowing to sucking and sucking to blowing, wholly out of time and in conflict with the patient's own respiration. In that case, consciousness did not return, and the man died in coma a couple of days after the asphyxiation.

CARBON MONOXIDE ASPHYXIA

Unlike many other poisonous gases, carbon monoxide is not an irritant; even in amounts that are deadly, it does not directly injure the lungs, and may not appreciably diminish the percentage of oxygen in the air of the lungs. Instead, this gas combines with the hemoglobin, the red coloring matter and oxygen-carrying substance in the blood. Until it is largely displaced from the blood and the oxygen-carrying capacity of the blood thus restored, the tissues of the body, and particularly the brain, continue in a state of asphyxiation, that is, oxygen starvation. Accordingly, it was early realized that the only way that carbon monoxide can be displaced from hemoglobin is by the mass action of oxygen. But in practice, mere inhalation of oxygen alone often failed to resuscitate; and if the victims did not die in asphyxia, they sometimes survived as idiots or neurological cripples.

If then asphyxial damage to the

brain is to be reduced to a minimum, it is essential that as large an amount of oxygen as possible shall be drawn into the lungs, and blown out again several times a minute for a half hour or more with continually fresh oxygen. This—as above stated—pulmotors and "resuscitators" were designed to do; but, owing to the fact that natural respiration will not cooperate with sucking and blowing machines, but rather opposes their action, they have proved incapable of accomplishing. Accordingly, the mortality induced by carbon monoxide poisoning in such cities as New York and Chicago—during what may be called the "pulmotor period" (1910-1922)—was not appreciably decreased from the "prepulmotor or oxygen inhalation period" (prior to 1910). A typical case of the deaths that were common in the "pulmotor period" was described in the *Journal of the American Medical Association* of March 8, 1912, page 738, by a competent witness, Dr. Morris Fishbein, now the editor of that journal, as follows: The patient "who had been poisoned with CO was subjected to the action of a pulmotor for several hours. After nearly 5 days of unconsciousness, the patient died. At autopsy, hemorrhage into the lungs and visceral pleural emphysema (dilated areas) of the right lung were found, together with subpleural emphysema." In this and many similar cases it is particularly noteworthy, that, as carbon monoxide is not an irritant gas, the condition of the lungs found at autopsy was clearly due mainly to the mechanical damage done by the sucking and blowing of the apparatus.

In the directions for the use of "resuscitators," which are supplied with the apparatus, it is stated that, if the patient is still breathing, or begins to breathe, the suck and blow action should be switched off and the inhalational action switched on. And this, little as the writers of those directions seem to realize it, virtually signs the death warrant of every deeply asphyxiated patient so treated. For this inhalation is given with a type of mask and valves such that much of the carbon monoxide that comes out of the lungs is re-inhaled and its elimination thus retarded. Neither in respect to artificial respiration by sucking and blowing nor by means of their inadequate inhalational attachment are the "resuscitators," now so actively promoted, capable of restor-

ing natural breathing or eliminating carbon monoxide from the lungs and blood sufficiently rapidly, if the case is severe, to prevent serious and even fatal postasphyxial effects.

RESUSCITATION BY INHALATION OF CARBON DIOXIDE AND OXYGEN

Fortunately for the saving of life, that volume of lung ventilation which can not be produced by suck and blow machinery, without risk of serious harm, can be induced safely and with high efficiency by natural breathing when stimulated by inhalation of carbon dioxide. For when the requisite concentration (7 to 9 per cent) of carbon dioxide is administered mixed with otherwise pure oxygen, so large a volume of breathing is induced and such a mass action of oxygen is brought to bear on the blood as it flows through the lungs that virtually all the carbon monoxide that has been absorbed is rapidly eliminated; and the asphyxiation is thereby terminated.

Accordingly, in 1921, Henderson and Haggard introduced the method of resuscitation by inhalation of oxygen with enough carbon dioxide to induce a maximum minute-volume of respiration. After long and careful laboratory and clinical tests, they determined the conditions requisite for the most effective use of this mixture. These are (1) that it shall contain 7 to 9 per cent. of the stimulant carbon dioxide; (2) that the inhalator employed shall be capable of administering the maximum volume per minute that the patient can thus be stimulated to inhale; (3) that the inhalator shall not permit any rebreathing whatever; and (4) that the valves and bag shall be so arranged that the resuscitant gas flows to the mask only during inspiration; otherwise the supply may be exhausted before resuscitation is effected.

It should be emphasized also that the inhalator devised along these lines by Henderson and Haggard has never been patented, or its manufacture, sale and use limited in any way; it is free to any and all.

MANUAL VERSUS MECHANICAL ARTIFICIAL RESPIRATION

At nearly the same time (about 1912) that the pulmotor first appeared, the prone pressure method of manual artificial respiration was introduced by Professor E. A. Schafer, of Edinburgh. In order that there might be sound and authoritative

evaluation of all methods, new and old, for artificial respiration, a Committee on Resuscitation from Mine Gases was appointed jointly by the U. S. Bureau of Mines, the American Medical Association, the American Red Cross and the National Electric Light Association; the predecessor of the Edison Institute. The members of this committee were W. B. Cannon, G. W. Crile, J. Erlanger, S. J. Meltzer and Y. Henderson; and as authorities on the conditions inducing death by electric shock, Elihu Thomson and A. E. Kennelly were added. All methods of artificial respiration known or proposed at that time (1912) were subjected to careful and prolonged experimental and clinical investigation by the members of the committee themselves.

The members of that first committee acted on a sense of responsibility for the preservation of human life; a moral sense not so evident in a more recent committee—the Council on Physical Therapy of the American Medical Association—which “accepts”—that is, approves—“resuscitators” on the basis of no personal investigation by any of its members—as admitted in their letters to me—other than the secretary, who is a mechanical engineer of no physiological training or medical experience.

The main point developed by the committee of 1912 in regard to manual methods of artificial respiration was, not that any one of them—whether Schafer, Silvester or others—induces a much larger ventilation of the lungs than any other—in fact, without inhalation of carbon dioxide too large a ventilation would be harmful; but that the prone pressure method has the great advantage that it can be applied immediately: a delay of even a few seconds, while apparatus is being brought and applied, may lose a life. Prone pressure is easier to teach and learn than any of the other methods; it can be continued longer without exhausting the operator; and it aids the circulation by pushing blood toward the heart. Accordingly the Schafer prone pressure method was adopted, particularly by the American Red Cross, and the pulmotor and similar breathing machines (not then claiming the title of “resuscitators”) which rely on alternately sucking and blowing were condemned. The resuscitation committee held that “inflation and deflation of a bag are deceptive because the bag, unlike the air passages of

the body, offers no resistance till full. As soon as the inspiratory blast meets an obstacle in the air passages, it is automatically cut off and turned into expiration; and thus frequently no effective inspirations are performed.” Thus the time within which the victim may be saved is lost while the apparatus merely clicks back and forth ineffectively. This has continued to be, and is now, the position of the American Red Cross (see its booklet on “Life Saving and Water Safety,” page 189). It advocates (1) immediate manual prone pressure artificial respiration, and (2) simple inhalators as auxiliary aids; but it disapproves of suck and blow mechanical devices.

Between 1912 and the present time, four other committees have published the results of their investigations on methods of resuscitation: two in this country, one in 1918 and one in 1921, and one under the British Medical Research Council. Three of these committees have unanimously condemned suck and blow apparatus under whatever name; while only one—the above-mentioned Council on Physical Therapy—has accepted such devices. And thereby hangs the grotesque story which it is one of the objects of this article now to tell.

WHY DOCTORS PROMOTE “RESUSCITATORS”

The story is that of how and why it has come about that at the present time a large proportion of American physicians believe that the American Medical Association, through its Council on Physical Therapy, recommends “resuscitators”—a belief which is the principal basis for the extensive introduction of this apparatus. As a result, the sales agents of the E. & J.—as the most promoted of these devices is commonly called—find in every city and town of the United States one or several physicians of good standing in the community who are “members of the A.M.A.” and read its journal and who on this basis confidently and conscientiously assure their fellow citizens that the purchase of a “resuscitator” for the hospital or the fire department is a public-spirited act.

Commercially, the sales campaign of the E. & J. is thus far ethical. But it does not stop at measures that are scientifically and commercially ethical. Three times at least that campaign has involved attempts to prevent the publication of scientific opin-

ion or evidence adverse to the E. & J. “resuscitator.” It happens that the first report adopted by the Council on Physical Therapy was never published. It was adverse to the E. & J. “resuscitator.” I know, because I wrote it. I was at that time a member of the council and, as I had already tested the “resuscitator” on animals in my laboratory and had found it to be essentially a pulmotor, I was asked by my colleagues to draft the council’s report. It was approved and adopted by the council. It was, in fact, on the point of publication in the *Journal of the American Medical Association*. But at that point unfortunately the E. & J. Company learned—or were informed—that the report was adverse. Thereupon they sent their lawyers to the then president (1934-35) of the American Medical Association and the report was suppressed by action of the trustees; and I resigned from the council. On my part this was a conscientious, but unwise act; for the agents of the E. & J. thereupon set themselves to winning the secretary of the Council on Physical Therapy to the support of their device. In contravention of that influence, I then invited the council to delegate a subcommittee of its members to join with me in testing the “resuscitator” on animals. Whether that invitation ever reached the full council, I do not know. But I do know that it reached the secretary, and that he made no reply. I know also that soon thereafter the agents of the E. & J. achieved their object: instead of their “resuscitator” being disapproved, it was added to the “list of devices accepted by the Council” (see *Jour. Am. Med. Assn.*, 112: 1945, May 13, 1939). Ever since that it has been supported in frequent published statements by the council as being at least as efficient a means of artificial respiration as the Schafer prone pressure method.

In this respect, the American Medical Association is in direct antagonism to the American Red Cross.

Twice in recent years the lawyers of the E. & J. Company have threatened suit against the publishers of the books in which I have reported my investigations in the field of resuscitation. One of these publishers ignored that threat with the scorn that it deserved. And nothing happened. The other publisher took the matter so seriously that he delayed the publication of the book (“Noxious Gases,” by Henderson and Hag-

gard), for six months and went to considerable expense for legal advice—as did I also—in defense of the right of an author to tell the truth.

In addition, it is of interest—to me at least—that in the latest advertisement of the E. & J. "resuscitator" one of those books is cited as supporting that device.

So matters have gone on until in their hunger for sales the agents of suck and blow apparatus have nagged bureaus in the U. S. Army, Navy and Shipping Board to the point of asking the National Research Council for the appointment of a commit-

tee on the subject of "resuscitators." That committee met recently and made its report; and this report is about as adverse to "resuscitators" as is this article of mine.

So far so good. The various bureaus of the Federal Government will now be saved very considerable amounts of money, as well as the lives of many soldiers, sailors and marines. But that report is unfortunately "restricted" and will not decrease the mortality from asphyxia among the 130 million citizens of the United States, who will never hear of it.

The B Vitamins

Deficiencies are not so common as is often supposed, recent studies show. With a good diet, anybody can get required amounts of these important vitamins.

Enthusiasm for vitamin pills has been fostered by nutrition investigators and physicians as well as by countless advertisements. But whereas the drug advertisers are simply out to sell another product, the motive for the enthusiasm of nutrition investigators and doctors is different. They are, for the most part, impressed by the truly wonderful results obtained in the treatment of severe nutrition deficiencies with potent vitamin preparations. Their fault lies in the unwarranted inferences they have drawn from such results.

The fact is that the common ailments and symptoms of mankind—constipation, fatigue, insomnia, nervousness, "rheumatism," etc.—usually result from a complex of factors, the most important of which are often psychological and social. Nutrition is undoubtedly a part of this complex, and a good dietary almost always helps in the prevention and treatment of disease. But it is a mistake to reduce nutrition to a question of vitamin pills, and to make the latter the sheet-anchor of treatment for numerous ailments.

That common ailments or symptoms are often temporarily relieved by vitamin pills is in most cases due to nothing more than psychological effects on the patient which result from miracles reported in advertising and the enthusiastic convictions of medical practitioners and medical

writers. Many millions of dollars spent for vitamin preparations should have been spent for other types of treatment which were genuinely needed, or should have gone for general improvement of the diet. There are cases where B vitamin supplements are needed; but these are far less common than generally supposed.

THIAMINE (vitamin B₁) was discussed fully in the *January Reports*. Riboflavin, niacin, pyridoxine and pantothenic acid are the chemical names of other members of the so-called vitamin B complex. These, together with thiamine, are the ones generally listed in the statements of potency of vitamin B preparations.

The deficiency diseases resulting from a lack or gross deficiency of thiamine, riboflavin and niacin (nicotinic acid) are well known. The existence of pyridoxine, pantothenic acid and other factors of the B complex such as choline, inositol, biotin and folic acid is, in the words of Dr. C. A. Elvehjem, "based largely upon work with animals, and the use of these factors in practical nutrition is not too clearly understood."¹

PYRIDOXINE AND PANTOTHENIC ACID are concerned with the prevention of skin disorders in rats, but no clear-cut symptoms or signs resulting from the deficiency of these vitamins in human beings have been described.

¹ "Newer Members of the Vitamin B Complex," by Dr. C. A. Elvehjem; *Journal-Lancet*, November, 1943.

It has never been proved that either or both of these vitamins will restore grey hair to its previous color. Both vitamins are probably essential for good nutrition, but in what way is not known. The same is true for other factors of the B complex—choline, inositol, biotin and folic acid. At any rate, it is a fact that all of these vitamins can be obtained from a varied diet including vegetables, milk products, whole grain products and meat.

RIBOFLAVIN (vitamin B₂ or G) is important for growth and development, and is concerned with the "respiratory enzyme systems." Certain disorders of the eyes, tongue, lips, mouth and skin around the mouth and nose have been attributed to riboflavin deficiency. In a severe riboflavin deficiency one or more of these symptoms appears and can be cured by the pure chemical, riboflavin. It is not known how widespread are lesser degrees of riboflavin deficiency. But it is a fact that riboflavin deficiency can almost always be prevented by including milk products (the most important source of this vitamin) and meat in the diet.

NIACIN (nicotinic acid or nicotinic acid amide) is the vitamin primarily, though not exclusively, involved in the development of pellagra. This disease was a common cause of death and disability in the South among both whites and negroes because of the inability of so many to purchase an adequate and wholesome diet. It is to be hoped that increased purchasing power plus education will reduce the incidence of this disease of poverty. Whether mild degrees of niacin deficiency occur in any considerable portion of the population is unknown. The recent investigations of Najjar, Holt and Wood, demonstrating fluorescent materials in the urine of persons with adequate body stores of thiamine, riboflavin and niacin (see the *Reports*, January 1944) should stimulate research in this field.

So far, the use of these tests for fluorescent materials convinced its originators² that the frequency of deficiencies of the B vitamins is at present considerably overestimated. In addition to urine tests for fluorescent substances, they have carried out a number of experiments which indicate that the intestines of normal persons contain bacteria which can

² Doctors L. E. Holt Jr., A. V. Najjar, R. W. Wood, H. J. Stein and C. V. Kabler of Johns Hopkins Hospital.

manufacture at least one of the B vitamins—thiamine. It is not yet known what organisms are responsible for the natural synthesis of the vitamin, or what dietary conditions enable the bacteria to flourish. "But it is at least clear that a new protective mechanism against avitaminosis [vitamin deficiency] in man has been demonstrated." These investigators also noted that sulfa drugs interfere with the normal protective mechanism. They infer that anyone taking a sulfa drug over a prolonged period—more than a week—should have an extra supply of the B vitamins.

Does the normal adult need a vitamin supplement?

Evidence contributed by hundreds of investigators shows that if the average adult (see November 1943 *Reports* for discussion of exceptions) eats a normal diet, there need be no fear of vitamin deficiency. This is true for vitamins A, C, K and E as well as for the B vitamins. Adults can get enough vitamin D from normal Summer exposure to sunshine. A wholesome diet for good nutrition includes citrus fruits, milk or cheese, whole grain bread or reinforced white or rye bread, meat, fish or fowl, and a variety of leafy as well as starchy vegetables. *The emphasis should be on variety and natural foodstuffs.* The principles of proper cooking and storage should, of course, be observed. Eating in restaurants and cafeterias carries the hazard of loss of vitamins from overcooking or prolonged display on steam tables.

Only in certain conditions described in the previous article, or where it is simply impossible to get an adequate diet, is there clear need for use of a supplement of vitamins. Since the conditions referred to are associated with serious diseases or with child-bearing, the vitamin preparations needed will be determined by a physician.

Can a vitamin supplement take the place of a good diet?

All evidence points to the contrary. Good food contains all the known vitamins and probably many that have not yet been isolated or discovered. Experience with pellagra and other severe deficiency diseases has shown that while the pure synthetic vitamins may cure some of the symptoms, they will not cure all, and above all they will not prevent a recurrence unless at the same time, a wholesome, balanced diet is given. Furthermore, many experiments on men and animals have shown that if a completely

vitamin-free diet is supplemented by all the known vitamins in pure form, symptoms of nutritional deficiency will, nevertheless, appear. To avoid deficiencies on such a diet, the B vitamins must be supplied by a food source such as liver or brewer's yeast.

What vitamin preparations should be taken in suspected or diagnosed deficiencies?

If the diet is properly balanced, a vitamin supplement, no matter how rich or varied in synthetic vitamins, will not completely correct it. If a vitamin B deficiency is suspected because of poor diet over a prolonged period or because of disease, a proper vitamin B supplement should be chosen, preferably from among natural sources. Dr. Tom Spies expresses the opinion of most investigators on this matter: "Dried brewer's yeast powder, liver extract, wheat germ and rice polishings are excellent therapeutic agents for the treatment of diseases arising from a deficiency of the B complex vitamins. These substances are particularly valuable in that they contain significant amounts of protein and other essential nutrients, and probably vitamins of the B complex as yet unknown."

Many drug companies add a bit of liver extract or yeast to the synthetic vitamins in their preparations, and claim special virtues for them. However, the amounts present in such capsules and tablets are too slight to make them reliable substitutes for recommended doses of yeast powder or liver extract. But even these small amounts are probably better than nothing, and if a synthetic B complex must be purchased, choose one containing some natural substance such as liver or yeast.

It is true that a small capsule is easier to take than liver extract by injection, or liver or yeast powder or tablets by mouth, but the capsules are not satisfactory substitutes for the natural products. About 15 tablets of brewer's yeast are equivalent to two teaspoonfuls of powder. The taste of the yeast powder can be partially disguised if it is stirred into milk or tomato juice, or mixed with tomato catsup. It can also be sprinkled over cereal or added to egg nog. A mixture of about one part of the yeast to three parts of peanut butter, spread on bread, may be acceptable to those who like peanut butter. Dr. Spies, an authority on nutrition says

¹ "Principles of Diet in the Treatment of Disease," by Dr. Tom Spies, *Journal of the American Medical Association*, June 16, 1943.

that, "A mixture of the yeast and peanut butter is practical and if used wisely would go a long way toward correcting the deficiencies of proteins, fats, calories and B complex vitamins in the diets of many persons." (Intolerance to yeast powder or tablets is manifested by gastric or intestinal symptoms in some persons. Wheat germ, liver or rice polishings may be tried in such cases.)

Will extra vitamins improve the health?

If a normal person is on a well-balanced diet, extra vitamins derived from natural sources or from synthetic B complex preparations will not improve health. Neither these nor any other vitamin preparations will prevent or cure colds or sinusitis in a person who is on a normal diet. Nor will vitamins prevent or cure nervousness, irritability, habitual insomnia or other disturbances which are due to psychological tension or conflict.

Chronic fatigue and listlessness are symptoms for which the B vitamins are frequently prescribed. But large daily supplements of B vitamins to soldiers, in the regular U. S. Army garrison rations, have not improved physical endurance or the ability to perform brief, exhausting or sustained, hard work. Dr. Austin Herschel of the University of Minnesota says: "All acceptable evidence agrees that the supplementation of an adequate diet with any or all of the vitamins known to be required by humans does not increase physical performance, work output or recovery from fatiguing work."

Chronic fatigue and listlessness are often symptoms of a deep-seated psychological difficulty which should be treated by a psychiatrist and not by *One-A-Day* or any other brand of vitamin capsules.

Is there any harm in taking excess B vitamins?

Most authorities agree with Dr. Holt and Dr. Najjar that, "Aside from the drain on the pocketbook, the contents of which might better be used for nourishing foods, there seems to be little danger in giving B complex as a whole." Note that "*B complex as a whole*." Natural sources such as liver, yeast and wheat germ contain the whole B complex, and no harm will follow the use of these sources.

There is probably no harm, either, in taking one or two capsules daily of a B vitamin preparation containing the synthetic B vitamins in

amounts conforming to standards set by the Food & Drug Administration; that is, the proportions of the B vitamins should be: thiamine, 1 mg. (milligram); riboflavin, 2 mg.; and nicotinic acid, 10 mg. However, too high a dose of such a preparation may cause a disproportion in the body tissues between these vitamins and other members of the B complex. As Dr. Holt and Dr. Najjar point out, "Vitamins taken in excess are disposed of in large part by unknown mechanisms, some of which may involve the use of other vitamins, creating an abnormal demand for the latter."

Thus it has been shown that an excess of either thiamine or riboflavin will cause an increased demand for niacin. Or an excess of niacin will cause an excessive demand for other B vitamins such as choline. An excess of one or the other vitamins in the B complex has to be dealt with in some manner by the body. It may draw upon the supply of the other B vitamins and thus cause a deficiency in these B vitamins. In this way, the use of pure B vitamins may overturn the delicate balance or proportion of all the B vitamins in the body tissues. A natural source of the B complex, such as foods (liver or yeast) will not do this.

Other harmful effects of large doses of pure B vitamins have been observed in laboratory experiments. Disease of the gall bladder has been produced by use of large amounts of pure B vitamins. Experiments with animals show that excessive amounts of B₁ may also have a harmful effect on natural resistance to infantile paralysis. While the evidence is merely suggestive at the present, it is enough to justify caution in the use of the pure B vitamins. The indiscriminate use of tablets of thiamine or capsules of pure, synthetic B vitamins not only will not perform half the miracles claimed for them, but may even adversely affect the health.

Brand ratings of products containing the B vitamins—pure synthetic products, capsules, tablets and natural sources—are in preparation, and will be published in an early issue of the *Reports*.

The Best Buy of all is

WAR BONDS

February, 1944

NEWS AND INFORMATION

The Wagner-Murray-Dingell Plan

A social security program for all the people

The Wagner-Murray-Dingell Bill proposes to supplement and expand the benefits provided by the existing Social Security Act by:

1. Establishing a unified National Social Insurance system;
2. Extending social security rights to individuals in military service;
3. Providing permanent disability insurance;
4. Providing unemployment compensation, temporary disability and maternity benefits;
5. Establishing a national system of public employment offices;
6. Providing grants for medical education and investigation;
7. Providing grants-in-aid to States for medical care of the needy.

These are the provisions of the bill attacked by the American Medical Association, its agencies and allies as the forerunner of "socialism," "political medicine," or as just plain "bureaucracy." The AMA, the National Physicians Committee (unofficial political arm of the AMA) drug and chemical companies, and chambers of commerce, have formed a united front against what they call the death knell for "free enterprise," private practice of medicine, etc. The organizer of the united front is the AMA. It attacks the bill not because of the social security benefits, but because the bill, for the first time in American history, provides for a national health program for the great majority of the people.

Let us see what is so "threatening to our way of life" in the medical provisions of the bill:

WHO IS COVERED?

The bill establishes a national system of compulsory health insurance for all persons coming within the Old Age and Survivors System; that is, all those employed for wages or salaries, including farm workers, domestic servants, and employees of non-profit organizations (except ministers and members of religious orders), all self-employed persons, the dependent

wives and children under 18 of the employed and self-employed. States, counties and cities may enter into contracts with the Social Security Board to provide medical care and hospitalization for public employees and their dependents, and for "welfare," and "public assistance" and "home relief" cases.

WHAT SERVICES ARE PROVIDED?

1. Medical care by general practitioners;
2. Care by specialists;
3. Hospitalization;
4. Laboratory services, diagnostic and therapeutic X-rays, physiotherapy, special appliances and eyeglasses.

DISABILITY BENEFITS

Permanent and temporary disability benefits, including maternity benefits, are provided under unemployment clauses of the Bill. Provisions are also made for rehabilitation.

DENTISTRY AND OTHER SERVICES

The Bill does not provide for dental care or home nursing. Medicines also are not provided, except during hospitalization. However, the Bill suggests that the Surgeon-General and the Social Security Board should study the most effective methods of providing such benefits within two years after the other medical benefits become effective.

ADMINISTRATION

Authority over the health and medical provisions of the bill is vested in the Federal Security Administrator.

Professional and administrative functions are entrusted to the Surgeon General of the Public Health Service.

Ultimate responsibility for financial matters is entrusted to the Social Security Board.

Advisory Councils, two in number, with broad functions, are to be established.

1. A Federal Social Security Ad-

visory Council under the Social Security Board, is to be "composed of men and women representing employers and employees in equal numbers and the public." It is to determine general policies with respect to social security provisions as a whole to aid in the solution of administrative and financial problems.

2. *An Advisory Medical and Hospital Council*, consisting of the Surgeon General of the Public Health Service, who is ex-officio chairman, and 16 members. The members are to be selected by the Surgeon General "from panels submitted by professional and other agencies and organizations concerned with medical services and education and with the operation of hospitals and from among other persons, agencies, or organizations informed on the need for or provision of medical, hospital, or related services and benefits."

The function of the Council is to advise the Surgeon General concerning professional standards of quality, the designation of specialists, means to improve standards of professional service, the designation of standards for hospitals, and suitable and adequate methods of payment. It is to conduct studies and surveys of medical services and to designate grants-in-aid for education and research.

Principles of Administration. Any physician legally qualified "by a State to furnish any services included as benefits under this title" shall be qualified to furnish such services in accordance with rules and regulations that may be prescribed.

There shall be free choice of general practitioners, but not specialists, by beneficiaries.

Practitioners shall have the right to refuse patients.

The names of general practitioners who have consented to participate in the plan must be published and made readily available to beneficiaries.

Practitioners must be properly qualified to serve as specialists "in accordance with general standards" prescribed by the Surgeon General "after consultation with the Council and utilizing standards and certifications developed by competent professional agencies."

Services of specialists shall ordinarily be available only upon the advice of a general practitioner.

Payments to general medical practitioners may be made: "(A) on the basis of fees for services rendered to individuals . . . according to a fee schedule approved by the Surgeon

General; (B) on a per capita basis . . . according to the number of individuals . . . on the practitioner's list; (C) on a salary basis, whole time or part time; or (D) on a combination or modification of these bases, as the Surgeon General may approve, according in each area as the majority of the general medical practitioners to be paid for such services shall elect, subject to such necessary rules and regulations as may be prescribed.

Payments to specialists may be made by "salary (whole or part time), per session, fee for service, per capita, or other basis, or combinations thereof."

Methods of administration, including payments, should be aimed to ensure prompt and efficient care of beneficiaries; promote personal relationships between physician and patient; provide professional and financial incentives for professional advancement of practitioners; encourage high standards in the quality of service by adequate payments to practitioners, offering opportunities for post-graduate study, and promoting coordination of services; aid in preventive measures; and ensure the greatest economy consistent with high standards of quality in service.

HOSPITALIZATION

Hospitalization is limited to 30 days in any benefit year unless the Board of Trustees finds that the funds available will permit extension to a longer term, not to exceed 90 days.

Hospital benefits: from \$3 to \$6 per day in general hospitals, for 30 days; \$1.50 to \$4 per day for time in excess of 30 days; \$1.50 to \$3.00 a day in institutions for the chronic sick.

GRANTS-IN-AID FOR MEDICAL EDUCATION

Research and Preventive Measures. The Surgeon General is "to administer grants-in-aid to non-profit institutions and agencies engaging in research or in undergraduate or post-graduate professional education." Institutions can apply for such grants, which may be awarded by the Surgeon General with the advice of the Council.

CONCLUSION

These are the general provisions of the Bill. The Bill has imperfections, but they can be discussed and eliminated at Congressional hearings.

But it is certain that the Bill does not destroy private practice of medicine, interfere with physician-patient relationship, or place the practice of medicine in the hands of a single "gauleiter" or dictator, as the AMA falsely claims. These are spurious issues intended to frighten Americans away from the social and health security for which they have long sought.

Consumers should urge their Congressmen and Senators to support the Bill and should call for immediate hearings on it.

The general principles of the Bill have the backing of two groups of progressive doctors: the Physicians Forum, headed by Dr. Ernst Boas of New York; and the Committee of Physicians for the Improvement of Medical Care, headed by Dr. Channing Frothingham and Dr. John P. Peters.

(The next article will discuss the reasons for the opposition to the Bill by the "AMA—pharmaceutical axis.")

New Directors

CU's Board of Directors, in accordance with the provisions of the by-laws of Consumers Union for the filling of interim vacancies, has elected the following to serve on the Board:

JEROME R. HELLERSTEIN, lawyer, specialist in taxes. Graduate of Harvard Law School. Assistant Corporation Counsel, City of New York, 1938-1940. Author of articles on taxation and labor laws in legal and technical periodicals. Chairman, Committee on Taxation, National Lawyers Guild; member of the Editorial Board, I.J.A. Bulletin and Lawyers Guild Review.

DR. HARRY GRUNDFEST, physiologist. On leave from Rockefeller Institute, engaged in essential war work for the U. S. government. Has written many scientific articles on nerve and muscle reactions. National Secretary, American Association of Scientific Workers.

Financial Statement

The following statement is a résumé of income and expenses for Consumers Union during the last fiscal year. Note that expenses for technical work are included in two places under "Cost of Preparation of Material for Reports and Buying Guide": "Salaries" and "Outside Tests." The total for these two is relatively small as compared with the high quality and large amount of technical work represented in CU publications. This is because thousands of dollars worth of work is contributed, either free or at nominal rates, by a great many scientists interested in furthering the work of the organization. The value of such work cannot be reflected in this statement.

BERNARD J. REIS, Treasurer.

Consumers Union of United States, Inc. Statement of Income and Expenses for the Period from June 1, 1942 to May 31, 1943

INCOME:

Initial Memberships	\$74,820.81
Less: Cost of Securing Above Income:	
Salaries	\$ 2,764.13
Advertising	109.30
Postage	8,994.31
Printing	18,111.46
Mailing	8,321.68
Other Promotion Department Expenses	696.04
Total Promotion Department Expenses	38,996.92
Net Income Secured from Initial Memberships	\$ 35,823.89
Renewals	\$72,386.64
Less Cost of Securing Renewals:	
Printing	\$ 2,356.24
Postage	1,893.34
Mailing	232.11
Total Renewal Expenses	4,481.69
Net Income Received From Renewals	67,904.95
"Bread and Butter" Income	21,890.41
Sales of Reports	2,874.72
Net Profit on Sales of Books and Binders	2,517.89
Contributions	130.00
Miscellaneous	1,403.30
Total Income Available For Direct Activities of the Organization	\$132,545.16

EXPENSES (for Promotion and Renewal Costs, see above):

Cost of Preparation of Material for Reports and Buying Guide Not Including Value of Services Contributed:	
Salaries	\$22,634.37
Outside Tests, Consultants' Fees and Laboratory Expenses	8,905.11
Telephone and Telegraph	652.48
Total	\$ 32,191.96

Cost of Reports and Buying Guide:	
Reports	\$21,294.70
Buying Guide	5,948.47
Postage and Mailing Expenses	6,988.19
Other Expenses	276.20

Total Cost of Reports and Buying Guide

\$ 34,507.56

Cost of Maintaining Membership Records and of Preparing Envelopes and Wrappers for All Mailings to Members:

Salaries	\$11,071.62
Supplies	757.08

Total

\$ 11,828.70

"Bread and Butter" Expenses

\$ 17,514.35

Cost of Working with Membership Groups, Speakers Bureau, Preparation of Material for Classroom Use, Work on Consumer Legislation, etc.:

Salaries	\$ 3,010.46
Printing	665.26
Postage	858.01
Miscellaneous	1,646.17

Total

\$ 6,179.90

Administrative and General Expenses:

Director's Salary	\$ 4,331.40
Stenographers and Bookkeepers	3,423.10
Routine Tasks	4,918.85
Other Salaries	4,578.66
Rent of Entire Office, Cleaning and Light	5,785.46
Stationery and Office Supplies	2,143.06
Postage	746.30
Telephone and Telegraph	652.51
Bank Charges	973.13
Annual Meeting and Balloting Expense	1,094.30
Social Security Taxes	1,903.49
Other Expenses	3,666.75

Total

\$ 34,217.01

TOTAL EXPENSES

\$136,439.48

LOSS ON OPERATIONS

\$ 3,894.32

Depreciation of Office Furniture and Fixtures, Cabinets, etc.

3,535.18

EXCESS OF EXPENSES OVER INCOME

\$ 7,429.50

Auditor's Certificate

Gentlemen:

I have audited the books and records of Consumers Union of United States, Inc., for the year ended May 31, 1943, and submit herewith a statement of income and expenses for the year.

The entire amount of subscription income is included in this report, and no amount has been set up as a reserve for the unexpired portion of the subscription accounts.

Subject to this comment, I hereby certify that, in my opinion, this statement of income and expenses for the year ended May 31, 1943, is correct.

Respectfully submitted,

MORTIMER D. GOULD

By JACK SKOLLAD

Certified Public Accountant (N. Y.)

December 4, 1943

CUMULATIVE INDEX

Each issue of the Reports contains this cumulative index of principal subjects covered since publication of the 1944 Buying Guide issue. By supplementing the Buying Guide index with this one, members can quickly locate current material and keep abreast of changes resulting from new tests. Page numbers run consecutively beginning with the January 1944 issue. Jan. 1-28; Feb. 29-56.

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